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MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

FOR

FEBRUARY, 1870.

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MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,
Statistical Division, March 10, 1870.

SIR: I herewith report for publication statistics showing the relative number and prices of farm stock, in February, as compared with returns made in February of last year, with extracts from letters of regular and special correspondents; together with original papers on the following subjects: Beet sugar in Europe and in Wisconsin; a New Hampshire farm; tax on farmers as produce brokers; ramie; the Colorado grasshopper; tests of department seeds; agriculture in Lane County, Oregon; premium crops in New York; European agricultural statistics; water for teams; grain in Northern Europe; facts from various sources; and meteorological tables.

Respectfully,

J. R. DODGE,
Statistician.

Hon. HORACE CAPRON,
Commissioner.

RELATIVE NUMBERS AND PRICES OF FARM STOCK.

The returns of February, 1870, indicate a very slight increase of horses in the eastern and middle States, an advance of five per cent. in the Ohio Valley, thirteen per cent. in growing States west of the Mississippi, and eight per cent. in the cotton States. A slight increase in the number of mules is noted in nearly all of the States, most noticeable in Alabama, Mississippi, and Arkansas, and in Kansas and Nebraska.

The number of cattle are gradually augmenting, though not in equal proportion or in all the States. In the following States returns indicate a slight falling off from last year: Maine, Connecticut, New Jersey, Pennsylvania, North Carolina, Georgia, Louisiana, Texas, Kentucky, Illinois, Indiana, and Ohio. The States beyond the Mississippi show the largest relative increase.

The swine, mostly pigs and store hogs, appear to be somewhat reduced in numbers in all the New England States except Massachusetts, in New Jersey, Pennsylvania, Maryland, Virginia, North Carolina, Georgia, Alabama, Mississippi, Texas, West Virginia, Illinois, Indiana, Ohio, and Michigan. An increase of twenty-one per cent. is indicated in Kansas, and a considerable increase is shown in Missouri, Minnesota, Nebraska, California, and Oregon. On the whole, the supply of young swine is scarcely equal to the wants of our increasing population.

Sheep have increased in numbers largely in California, considerably in Kansas, Missouri, and Arkansas, and to some extent in Nebraska. A slight decline is indicated in most of the other States, not sufficient to reduce materially the aggregate numbers.

The prices of horses and mules have increased in some of the southern States; swine have fully maintained last year's rates, and the tendency in prices of sheep is upward. Cattle are somewhat lower in price than last year in most of the States, but cows are scarcely affected by the decline.

Table showing the relative proportion, in tenths, of the farm stock of the States named, in comparison with the number in February, 1869, and the prices of the same, for the different ages, in February, 1870.

States.	HORSES.					MULES.					MILCH COWS.	
	Total number of horses compared with that of February, 1869.	Average price per head under 1 year old.	Average price per head between 1 and 2 years old.	Average price per head between 2 and 3 years old.	Average price per head over 3 years old.	Total number of mules compared with that of February, 1869.	Average price per head under 1 year old.	Average price per head between 1 and 2 years old.	Average price per head between 2 and 3 years old.	Average price per head over 3 years old.	Total number of milch cows compared with that of February, 1869.	Average price per head at this time.
Maine	10.3	$35 04	$56 81	$80 90	$119 54	.....	.....	.....	.....	.....	9.7	$39 80
New Hampshire	10.5	32 16	54 00	80 66	100 83	.....	.....	.....	.....	.....	10.6	43 66
Vermont	9.8	32 33	53 50	78 16	100 00	.....	.....	.....	.....	.....	10.7	50 33
Massachusetts	10.1	40 37	63 28	90 00	147 50	.....	.....	.....	.....	.....	10.7	57 00
Rhode Island	10.1	34 66	55 66	88 00	120 00	.....	.....	.....	.....	.....	10.3	55 00
Connecticut	10.2	41 85	66 42	98 57	141 07	.....	.....	.....	.....	.....	10.3	60 14
New York	10.3	42 22	70 07	100 02	137 51	10.4	$45 66	$75 25	$111 25	$160 64	10.7	54 11
New Jersey	9.9	57 31	87 53	122 00	154 66	10.2	49 00	88 40	132 85	165 90	9.9	63 93
Pennsylvania	10.2	43 03	70 45	100 67	137 47	10.1	46 45	74 42	118 52	150 92	10.3	46 83
Delaware	10	43 33	65 00	95 00	120 33	10.6	48 33	66 66	91 66	136 66	11	40 66
Maryland	10.4	39 00	59 27	86 63	122 81	9.9	46 25	66 25	101 00	137 50	10	43 18
Virginia	10.5	37 54	59 40	88 59	117 34	10.1	43 63	68 40	106 22	130 96	10.1	30 04
North Carolina	10.2	38 73	60 34	87 50	115 66	10.4	45 92	71 46	107 82	133 44	10	20 55
South Carolina	9.8	43 05	65 00	95 44	144 25	10.4	44 88	71 38	110 00	147 00	10.6	22 63
Georgia	10.3	42 59	68 62	101 58	142 16	10.7	52 50	87 72	132 00	161 71	10	22 48
Florida	10.4	48 57	74 28	126 25	163 75	9.5	50 00	75 00	120 25	154 28	10.1	16 16
Alabama	10.8	43 50	65 45	100 41	144 61	11.2	52 72	94 16	135 38	163 46	10.2	23 46
Mississippi	11	36 92	56 78	84 14	132 71	11.6	43 33	68 84	123 84	157 73	10.9	26 34
Louisiana	12.5	33 75	48 00	76 66	123 57	10.2	37 50	61 60	106 00	147 71	10.2	30 14
Texas	10.4	13 04	21 43	26 31	42 82	10.3	22 05	33 42	49 55	69 22	9.9	10 67
Arkansas	11.6	29 50	47 14	69 04	101 00	11.7	37 64	59 28	91 07	125.00	10.6	22 60
Tennessee	10.7	42 21	58 61	89 63	117 38	10.2	55 38	79 98	114 81	139 74	10.6	29 07
West Virginia	10.9	34 82	52 57	77 42	102 77	10.4	42 00	64 73	90 00	119 04	10.5	33 60
Kentucky	10.3	40 91	58 08	76 75	102 25	10.1	49 66	71 08	100 16	127 33	10	38 51
Missouri	11	29 25	45 14	64 79	90 82	10.2	39 46	59 92	85 01	113 71	10.8	32 32
Illinois	10.6	29 63	45 76	65 33	95 02	10.2	37 80	57 96	83 20	112 42	10.1	37 02
Indiana	10.4	31 60	50 47	74 84	97 80	10	41 35	65 50	93 84	119 74	10	40 41
Ohio	10.2	34 86	54 08	78 00	106 34	9.8	40 52	63 21	91 02	118 76	10.2	44 77
Michigan	10.5	31 33	52 87	78 13	112 37	10.5	37 92	62 50	90 92	126 37	10.8	42 94
Wisconsin	11.7	33 32	52 64	77 67	112 14	10.5	38 00	62 33	90 66	138 94	11.2	35 78
Minnesota	11.3	39 83	65 00	94 33	127 50	10.3	39 16	69 16	115 00	136 66	11.3	36 11
Iowa	11.3	34 15	53 32	76 72	107 33	10.5	41 40	63 52	90 78	125 65	11.2	34 91
Kansas	12.3	30 65	49 17	75 08	105 86	11.3	37 00	57 40	89 09	123 42	12.9	37 42
Nebraska	12	39 16	62 33	91 66	126 25	11.9	50 00	68 42	105 62	137 50	11.5	39 91
California	10.5	12 69	21 61	34 42	54 88	10.6	20 50	37 66	58 66	86 33	11.2	47 62
Oregon	10.4	23 55	36 00	51 66	77 77	10.1	25 00	38 12	55 00	78 75	10.1	32 00

Table showing the relative proportion, &c.—Continued.

States.	OXEN AND OTHER CATTLE.					SHEEP.			HOGS.		
	Total number of oxen and other cattle compa'd with that of February, 1869.	Average price per head under 1 year old.	Average price per head between 1 and 2 years old.	Average price per head between 2 and 3 years old.	Average price per head over 3 years old.	Total number of sheep compared with that of February, 1869.	Average price per head under 1 year old.	Average price per head over 1 year old.	Total number of hogs compared with that of February, 1869.	Average price per head under 1 year old.	Average price per head over 1 year old.
Maine	9.8	$13 86	$24 50	$40 54	$70 18	8.5	$2 22	$2 99	9.8	$13 16	$26 37
New Hampshire	10.3	12 16	22 50	39 08	75 16	8.4	2 10	2 76	9.6	14 50	35 40
Vermont	11.2	10 33	20 83	36 00	63 00	8.1	2 08	3 16	9.6	13 16	27 00
Massachusetts	10.4	15 75	29 88	44 11	79 22	9.5	2 10	3 68	10.1	14 55	33 77
Rhode Island	10.3	15 33	25 33	41 66	76 66	10	3 33	4 66	8.6	12 33	25 66
Connecticut	9.6	17 42	28 71	44 57	87 14	8.8	3 35	4 78	9.7	14 28	27 78
New York	10.3	12 40	24 70	44 50	71 72	8.8	2 29	3 30	10	10 25	20 80
New Jersey	9.6	16 86	30 20	48 86	69 42	9.3	3 82	4 61	9.1	12 86	25 71
Pennsylvania	9.6	12 60	23 00	38 25	55 00	9.5	2 13	3 11	9.7	9.76	21 17
Delaware	10.6	10 66	19 00	28 33	43 33	10	3 50	4 66	10.6	8 00	12 50
Maryland	10.2	17 77	20 18	30 00	44 36	9.8	3 19	4 39	9.8	6 72	15 07
Virginia	10.1	7 60	14 21	23 03	33 34	9.4	2 00	2 78	9.8	4 20	9 10
North Carolina	9.8	4 45	7 73	12 34	18 16	9.3	1 18	1 82	9.8	3 59	8 35
South Carolina	10.1	4 27	7 75	13 09	19 18	9	1 19	1 92	10.4	3 50	6 57
Georgia	9.8	4 16	7 71	12 45	19 00	9	1 24	1 83	9.8	2 67	6 46
Florida	10.4	3 83	5 45	8 00	13 83	8.2	1 25	2 25	10.1	2 33	5 50
Alabama	10	4 73	8 19	15 92	23 46	8.9	1 02	1 79	9.7	4 25	8 87
Mississippi	10.4	4 71	7 90	12 50	23 72	9.3	1 26	1 94	9.8	3 51	9 55
Louisiana	9.7	5 40	7 66	11 50	16 42	9.5	1 25	2 25	10	1 85	6 64
Texas	9.9	2 18	3 45	5 58	9 85	10	1 13	1 90	9.6	2 10	4 39
Arkansas	10.2	4 90	7 93	12 46	17 83	10.9	1 39	2 96	10.8	4 04	9 17
Tennessee	10.3	5 98	10 51	17 37	26 84	9.8	1 41	1 96	10.1	3 63	8 36
West Virginia	10.3	9 98	18 57	29 92	42 10	9.6	1 34	2 08	9.9	3 83	9 58
Kentucky	9.8	10 80	18 75	30 85	46 03	9.7	2 02	3 00	10.2	4 26	10 88
Missouri	10.9	8 04	14 50	24 38	37 66	10.6	1 22	1 87	11.2	3 53	8 60
Illinois	9.9	9 76	17 14	27 18	41 54	9.4	1 23	1 80	9.6	6 32	13 65
Indiana	9.7	9 79	19 40	31 73	46 35	9.5	1 28	1 88	9.3	5 09	12 37
Ohio	9.9	11 66	21 33	34 62	52 37	9.5	1 37	2 19	9.8	6 95	16 76
Michigan	10.3	9 40	18 33	31 86	53 31	9.4	1 38	2 12	9.9	5 27	12 97
Wisconsin	10.5	8 50	14 52	24 50	42 28	9.6	1 62	2 30	10.3	6 41	14 35
Minnesota	10.8	11 06	19 68	29 81	47 06	10	1 80	2 63	10.7	5 78	12 13
Iowa	10.9	9 25	16 65	27 98	43 96	9	1 13	1 72	10.2	6 47	14 90
Kansas	13.5	9 86	16 86	28 78	46 60	11	1 45	2 34	12.1	5 16	12 73
Nebraska	11.4	9 45	17 58	32 50	45 85	10.5	1 87	2 72	10.6	6 11	13 90
California	9.7	10 93	18 68	29 06	41 87	11.5	1 81	2 81	10.7	3 57	7 20
Oregon	9.9	10 60	17 30	24 15	32 22	9.6	1 30	1 95	10.9	2 00	4 61

EXTRACTS FROM CORRESPONDENCE.

EXPERIMENTS WITH SEEDS.

Lincoln County, N. Y.—The Tappahannock wheat sent out in 1868 is a success in this locality. It made, last season, 28 bushels to 1 sown.

Harrison County, Ind.—The Tappahannock wheat has proved a very valuable variety. The first package was received from the department, October 6, 1864, and was sown October 10. The yield was very gratifying, both in quality and quantity. Since that time I have sown it every year with the same result. It ripens about two weeks earlier than the Mediterranean, the principal variety raised in this section. It has proved a most admirable kind for flour, our millers preferring it to all others, one miller saying that he will give, next year, 30 cents per bushel more for Tappahannock than for other varieties. A great many of my neighbors have obtained the seed from me, and in every instance it has given the greatest satisfaction. On account of its thick short stem it appears to be peculiarly adapted to bottom land, or to rich soil where the ordinary varieties are apt to lodge.

Vanderburg County, Ind.—About 10 pounds of Tappahannock wheat received from the department was sown in the early part of November, 1868, (when it was really too late,) on rich upland, southwest exposure. I harvested in June, 1869, (by measure) 5 bushels and 5 pounds of beautiful large-grained, white, sound, wheat. The seed was sown again in September, 1869, on other good soil, and the result will be reported. That sown in November, 1868, was partially winter-killed—probably $\frac{1}{4}$ or $\frac{1}{3}$ of it—and yet the yield was as above.

Cherokee County, Kansas.—I have the honor to make the following report of seeds issued by your department. One quart of Excelsior oats were sown May 7, forty days later than the remainder of my oat crop. They were put into a well prepared bed by drilling them eight inches apart with a Harrington garden drill. They grew wonderfully rank with heavy straw and leaves, but the rust struck them, and to finish it a very hard storm beat them down nearly flat, and I was compelled to cut them long before they were ripe. They were cut at the same time I cut the main crop, planted forty days earlier. In spite of all the calamities the Excelsior oats yielded the best. I got from the one quart sixteen quarts of good oats, though rather lighter than the original seed.

The Student parsnip grew large and well. It is an acquisition. The three varieties of tomatoes, Cook's Favorite, Cedar Hill, and Maupay, I planted with eight other varieties, purchased from dealers. They are all good varieties. The choice of the eleven is between the Cedar Hill and Maupay; both are excellent. The Winter Savoy Drumhead cabbage was the finest lot of cabbage seed I ever saw. They were planted April 29, set out June 28; raised four hundred heads. It is a magnificent cabbage, and I like it much better than the Marblehead Mammoth.

I planted, April 29, the following onion seed: White Lisbon, Red Wethersfield, Yellow Danvers, Madeira, and Yellow Dutch, expecting only to get sets, but to my surprise they began to bottom down, and, as I thinned them out they made large onions. I could not see any difference between the Yellow Dutch and Danvers. The White Lisbon is a very nice onion; the Wethersfield grew the largest, three and one-fourth inches in diameter. The Madeira is new, and succeeds well, though I cannot tell yet whether it will keep well or not. The Dwarf Blood beet does not amount to much. They had the best attention, and did poorly.

For the Purple Kohl Rabi I made an extra rich bed, near the stable, intending to transplant, but the plants were all eaten up as fast as they appeared. (Moral: Do not make open hot-beds near stables, because worms, bugs, beetles, and flies there do most congregate in early spring.)

The seeds from the department have been remarkably pure, more so than any I ever purchased, and are almost all fine varieties and valuable acquisitions.

Nicolet County Minn.—I have tried the English vetches, but they were a total failure. I also tried the mangel-wurzel as a substitute for corn for hogs and cattle; the trial was satisfactory, and I think one acre will fatten more hogs than two acres of corn, and with the same amount of labor. They should be planted in rows three feet apart so as to be attended with a small plow or cultivator. If too thick when four inches high they should be thinned to six inches; they are well suited to a cold climate. Many of my neighbors intend trying them next season.

The wheat received from the department last season was more than an average crop; the oats and barley did not get a fair trial, but I think next year they may do better. I will send you a sample of the wine rhubarb seed. The plants were imported five years ago from Lord Cremorne, county Monaghan, Ireland. It cannot be too highly recommended where fruit is scarce. It is said to be superior to any variety ever seen in this part of the country. The seed should be sown in drills as early as the ground will permit, covered about one inch, and the following spring transplanted five feet apart each way, as the leaves grow very large. They should be planted on rich soil, with plenty of rotted stable manure. They will be fit for use the second season after sowing.

HOG CHOLERA.

Hickman, Kentucky.—Judging from post mortem examinations, I am satisfied that hog cholera results from diseased liver or worms in the intestines. I killed a shoat some time since, and its liver was twice as large as it ought to have been, and full of boils. I killed a hog the other day, and its small intestines were covered with small pimples, very hard; I opened the gut and it was full of flat white worms which appeared to be dead, their heads sticking fast in the gut and making these pimples on the outside.

I am inclined to think that if a remedy can be found that will expel these worms, we will find a cure for hog cholera. The liver of the hog above named was perfectly sound. He was one of my pork hogs, and had been eating salt and ashes twice a week for two months, which had kept his bowels open, and prevented the worms from blocking up the canal and producing constipation, which is really what we call hog cholera, for if a hog purges he almost certainly gets well. Curing a sick hog is all stuff; I believe nine times out of ten the hogs cured would have got well anyhow. I believe in preventives. As soon as your pigs can "crack corn" cover the pen with ashes and sprinkle salt on it and shell the corn to them. Move your hogs as often as you can conveniently, and never feed long or let them sleep for a long time in the same place. In this latitude never suffer a hog to go under shelter; further north it may be necessary. Dust is the worst thing in the world for a hog; straw the next. If a hog should be taken sick move the well ones away from him and kill him, or leave him where he is. Green apples and red clover are also a good preventive. I have never had the hog cholera on my place but once, and scarcely ever have a pig or hog to die.

In the last two years my sows have had one hundred pigs, and I have

lost three pigs and two hogs, and yet have been surrounded by hog cholera each year. Hogs should not be fed in the morning in the spring and early fall; they will eat and bed up together when the mornings are cool, and of course at night. Being thus bedded up together nearly all the time will produce disease of itself. If not fed they will stir out to hunt something to eat. Give them a good feed at night and they will lie down and digest it well. The largest hog-grower in this county follows these rules and is never troubled with hog cholera.

LARGE YIELD OF OATS.

A correspondent sends the statement of J. T. Merriam, of Geauga County, Ohio, accompanied with an affidavit to the verity of the facts, showing a yield of twenty pounds of oats raised from the product of five heads sown on one rod and thirty and one-half feet of land, giving a yield of ninety bushels to the acre.

Mr. Merriam states in his affidavit that these oats were of a variety unknown to him, and that they grew from twelve to eighteen inches higher than the oats of another variety in the same field, and that some of the heads measured from twenty to twenty-three inches in length, producing from two hundred and fifty to three hundred and twenty kernels of grain to each head.

In another statement, Mr. Merriam says that he raised from one bag of oats, (containing less than one quart,) received from the Department of Agriculture, and sown on three rods and twenty-six and one-half feet of land, forty-nine and one-half pounds, giving a product at the rate of eighty bushels to the acre.

FLORIDA PRODUCTS.

A correspondent in New Smyrna, Volusia County, Florida, urges the Commissioner of Agriculture to supply, by aid of government vessels or otherwise, new varieties of cane, oranges, bananas, and figs, for propagation in that latitude. The want of such facilities for extending the culture of tropical fruits is greatly deplored, and government aid is earnestly sought. He refers to the following as the peculiar products of this region:

Prominent among these are sugar cane, oranges, lemons, limes, figs, guavas, and, in this section, bananas. There are some facts concerning several of these that may be new to you, and which form the basis of the suggestion mentioned above.

SUGAR CANE.—It is the general opinion of sugar planters that, owing to the prevailing custom of planting tops and inferior cane, as well as to hybridizing of the various kinds raised, our cane is very much degenerated.

ORANGES.—There is but one variety accessible to the mass of the people, and this, in some parts of the State, is becoming so much infested with the scale insect as to make it necessary to cut down and burn up the trees. A grove of fifteen hundred trees within twelve miles of here is now undergoing this severe remedy, and probably not a tree will be left standing. St. John's River was visited by the same destruction several years since, and may be again at any time. No grove in this county is free from the insect, so far as I am acquainted.

BANANAS.—This fruit is hardy here in ordinary seasons, and productive, but out of the great variety that exists in other countries there are

but two to be obtained here, and very few of these. One can get only two or three plants and wait for their increase.

FIGS.—These grow almost spontaneously, and are wonderfully productive, but there are few varieties here.

Bananas fruit in three years from the offshoot, oranges in three years from the bud, and figs three years from the cutting.

AVERAGE YIELD OF MILK.

Linus D. Sheldon, of Vernon, Ohio, writes as follows: My favorite cow Star was ten years old last spring. She is a cross between the Holderness and the Durham. She calved Christmas eve, 1868, and I commenced weighing her milk on New Year's morning following. Her weight was then 1,590 pounds, and at the close of the year 1,580 pounds. The yield per month during the year was as follows:

	Lbs.	Ozs.
January	1,147	12
February	1,038	14
March	1,079	12
April	1,001	8
May	1,148	12
June	1,152	8
July	1,037	..
August	881	..
September	900	..
October	887	..
November	575	..
December	339	..
Total	11,118	2

The largest daily yield during the year was forty pounds; the last day she gave only nine pounds—within eight weeks of calving. In a previous year she gave during the month of June 1,207¾ pounds. She will come in the first of March next.

BEET SUGAR.

Foreign statistics represent the consumption of sugar of all kinds, in the last nine months of the year 1869, in France, to amount to 295,000 tons, against 253,000 tons in the same period of 1868, in the following proportions:

	1869.	1868.
	Tons.	*Tons.*
Beet	137,000	129,000
Colonial	67,000	49,000
Foreign	90,000	74,000

The exportation of refined sugar for the same period in 1869 was

71,000 tons, against 57,000 tons in 1868, showing an increase of 15,000 tons; and the import from the colonies and foreign countries:

	1869.	1868.
	Tons.	*Tons.*
Colonial	66,000	80,000
Other countries	93,000	90,000

The stocks of beet and cane on the 25th of December were:

	1869.	1868.	1867.
	Tons.	*Tons.*	*Tons.*
Beet	44,000	42,720	34,000
Cane	9,110	15,115	2,800

Thus nearly one-half the sugar consumed in France is made of beets. The quality of this season's manufacture is unusually good, and the beet has yielded an increased percentage of sugar, the improvement in some cases reaching two per cent. Not less than 40,000 tons have been made in crystals and fine sugar above number twenty, Dutch standard, against 24,000 tons last year. It is estimated that 200,000 tons have already been manufactured, and the entire product of the season will be 250,000. The price at the close of the year was 61 francs for 88 per cent., or 5*s.* 6*d.* There will be less than usual of the brown graining sorts this season.

THE EUROPEAN YIELD.

A review of the beet sugar industry in Europe appears to indicate an increase of 100,000 in the annual production, which is placed at 725,000 tons, against 625,000 tons last year. A million tons will, ere many years, in all probability, be reached. The product already exceeds that of Cuban cane sugar.

The number of manufactories reported are as follows: In France, 475: Belgium, 120; the Zollverein, 297; Austria, 200. There are also thousands of spirit distilleries and alkali works, collateral branches of this industry. The consumption of beet sugar is extending on the continent and in Great Britain, where the industry as yet scarcely has a foothold. One manufactory and one distillery are in operation in England. The prejudice of English refineries against it is rapidly giving away.

BEET SUGAR IN WISCONSIN.

In pursuance of a call make by a committee of the Board of Trade of Fond du Lac, Wisconsin, a meeting of residents of that city and vicinity was held February 22, 1870, Mayor Nichols in the chair, to take into consideration the establishment of a beet sugar manufactory. Addresses were made by various gentlemen in reference to the success of the manufacture in Europe, and urging its introduction at Fond du Lac, not only as a matter of pecuniary profit, but also as a public benefit in giving employment to a large amount of labor, including that of women and children. Mr. Trowbridge, of the Novelty Works, offered to furnish machinery and take pay in stock, and another gentleman offered the use

of two hundred acres of land at a rental of three dollars per acre, payment to be made in stock. Mr. Wiferling, superintendent of the works at Chatsworth, Illinois, gave the following statement, based on experience at Chatsworth, of the daily cost of running a factory capable of using fifty tons of beets per day:

Beets, fifty tons	$200 00
Coal, twenty tons	80 00
Labor of one hundred hands	100 00
Grease, tallow, &c	4 00
Lights	2 00
Shovels, brooms, &c	1 55
Lime	8 00
Acids, &c	9 00
Loss on bone-black, 250 pounds	10 00
Belting	2 00
Filtering-cloths	3 00
Rubber, lead, hemp, &c., for packing	1 25
Changing, repairing, &c	10 00
Stationery, &c., in office	2 00
Coke	1 00
Sinking fund for wear, &c	66 60
Interest on capital	66 60
Salaries	20 00
Insurance	20 00
Barrels	20 00
Incidentals	25 00
	652 00

Fifty tons of beets will yield at least ten per cent. of boiled juice and the product will be as follows:

Coffee-sugar (A,) 4,000 pounds, at 15 cents	$600 00
Coffee-sugar (C,) 1,000 pounds, at 13 cents	130 00
Yellow sugar, 500 pounds, at 11 cents	55 00
Molasses, 3,000 pounds, at 2 cents	60 00
Pulp for feeding	15 00
Total income	860 00
Expenses	652 00
Net profit daily	208 00

Mr. Wiferling stated that tests had proved the soil at Fond du Lac to be free from the salts, &c., which have prevented the granulation of sugar at other points.

At a subsequent meeting, S. D. Carpenter gave the following estimate of the cost of establishing a factory capable of working up seventy-five tons, or one hundred and fifty thousand pounds of beets every twenty-four hours:

Building	$5,000 00
Pulping and power department	6,100 00
Scum department	400 00
Defecation department	1,100 00
Carbonation department	2,425 00
Evaporation department	9,300 00
Filteration department	2,725 00
Bone-black department	1,000 00
Crystallization department	3,725 00
Piping, vats, tools, &c	3,400 00
Total cost of factory	35,175 00
Add for 30,000 pounds of bone-black	1,500 00
Total	36,675 00

Mr. Carpenter estimated the annual expenses, including ten per cent. interest on outlay, at $48,967 50, to which he added twenty per cent. for insurance and incidentals, making a total of $58,761. He also gave the following as a fair estimate of the probable yearly income:

Sugar, 1,200,000 pounds, at 12 cents	$144,000 00
Pulp for feeding cattle, 2,700,000 pounds	2,700 00
Molasses, 5,000 gallons, at 35 cents	1,750 00
Residues as fertilizers	1,000 00
Total	149,450 00

A committee made a report on the history of the manufacture of beet sugar in Europe, containing the following exhibit of progress in France: In 1825 France produced 5,000 tons of sugar from 100 factories; in 1836 she had 436 factories.

Comparative results of 1837 *and* 1865.

	1837.	1865.
Yield of beets per acre	12 tons.	16 tons.
Cost per ton	$3.	$3 25.
Percentage of saccharine	10 per cent.	11½ per cent.
Sugar produced	4 2-5 per cent.	7 per cent.
Cost per pound	7 3-10 cents.	4 cents.
Amount of sugar produced	49,000 tons.	270,000 tons.

A NEW HAMPSHIRE FARM.

The farm of J. B. Walker, of Concord, New Hampshire, comprises three hundred acres; arable land, permanent pasture, and wood-land. The tillage land includes one hundred and ten acres of intervale, situated within three-fourths of a mile of the State-house, most of it nearly level, and particularly free from obstructions to the plow; also, twenty-five acres of low meadow land, improved by drainage. Each year he plants about six acres, well manured, in corn, the yield averaging for a course of years fifty to sixty bushels per acre, worth $1 25 to $1 50 per bushel. The presence of twitch-grass roots has required a heavy expense in cultivating this corn crop, compelling him to go over the field three times with cultivator and hand hoe. His statement of account with his corn crop of 1868 shows a cost in cultivation of $50 per acre; yet, even with this outlay, he secured a net profit of $33 94 per acre for the season, with the further promise of still greater profit in succeeding crops. After harvesting the corn, the stubble ground is plowed, harrowed, and sown with timothy and redtop; and for several years he averages on this corn land two to three tons of excellent hay, with a large second growth.

It has not been his practice of late years to follow corn with oats or other grain, as such a course produces rank growth and lodging of the grain, and leads to expensive and comparatively unprofitable harvesting. He grows about six acres of oats—mostly on inverted sod—averaging fifty bushels per acre, worth seventy-five cents per bushel, at an average of several years. Notwithstanding he is amply supplied with improved farm machinery, the oats are cradled and threshed by hand, as the straw, thus maintained in its best condition, is sold for filling beds, &c., finding a ready market at $14 per ton. In the autumn the stubble is turned under, the land manured and sown to grass.

Hay being the most profitable crop for his region and individual lo-

cality, he farms principally for that crop, generally mowing his grass lands six years in succession, obtaining at least two tons per acre, annually, throughout this entire period. He crops about one hundred and forty tons of hay—one hundred and ten tons of English hay, the rest meadow hay of varying quality—and sells from sixty tons to seventy-five tons annually, the price averaging for the last five years $20 to $25 per ton. The remainder of the hay he feeds to his farm stock. This stock consists of four large Devon oxen, eight cows, and young stock of different sexes and ages, making a total of twenty-five head, besides two large horses. His cows and young stock are chiefly full-blooded Durhams. The manure from his stock, with the addition of about $200 worth of stable manure, purchased annually, enables him steadily to increase the fertility of his farm, which has been under cultivation for one hundred and forty years, having been for the entire period owned by his family in the persons of himself and three generations of his ancestors.

Besides the arable lands already mentioned, the farm contains forty acres of pasture, and one hundred acres of timber and wood land. In cutting his timber and fire-wood he cuts clean as he goes, leaving the land to an entirely new growth of forest. He has recently sold the growth on twenty-nine acres at the following prices: Timber squaring six inches and over, $10 per thousand feet, board measure; under six inches, $6 per thousand; tops, limbs, and defective trees not suitable for timber, $1 per cord. The purchasers take the lot standing, and are to clear it off within a stated time. Careful estimates put the timber at twenty thousand feet per acre, and the fire-wood at fifteen to twenty cords per acre.

The foregoing statement is condensed from data furnished to the department by Mr. Levi Bartlett, of Warner, New Hampshire, who remarks that Mr. Walker has expended more money in draining than any other farmer of his acquaintance in the State.

TAX ON FARMERS AS PRODUCE BROKERS.

The municipal regulations of cities often bear with severity upon the producers of meats, fruits, and vegetables, and by unnecessary taxation and restriction tend to increase the number of hucksters and intermediate tradesmen, and to enhance the prices of produce to consumers, while the farmers are subject to the rapacity of these organized bands of middle-men, who are generally aided and protected by city authorities.

The wrongful construction of the revenue law, taxing farmers as produce brokers, when they only sell their own produce, has drawn large sums of money from the pockets of farmers contrary to the evident intention of the framers of the law and to the spirit of our revenue system. Hon. Henry A. Reeves, a member of the Committee on Agriculture of the House of Representatives, apprised of the fact that three hundred farmers of Queens County, New York, (in his district,) had been compelled wrongfully to pay this tax, introduced the following resolution into the House of Representatives:

Whereas the Acting Commissioner of Internal Revenue has construed the act of June 30, 1864, as amended by act of July 13, 1866, to authorize and to require the imposition of the special tax paid by produce brokers upon farmers and market-gardeners, who sell the produce of their own farms or gardens from stalls or stands, thereby levying a direct tax upon the production of the prime necessaries of life: Therefore,

Be it resolved, That the Committee of Ways and Means be directed to inquire into the expediency of reporting, at the earliest practicable moment, a joint resolution declaratory of the true intent and meaning of the said act in the particular above referred to or if, in their judgment, such a course be deemed necessary or desirable, then to report a bill amending the act in question, so as to remove the grounds for the interpretation put upon the act by the Acting Commissioner.

WHAT IS RAMIE?

The following letter from that eminent botanical authority, Joseph D. Hooker, of the famous Kew Gardens, England, who has examined the China grass fibers of the East under their various synonyms, corroborating our repeated statements that there is no essential difference between the specimens from different localities bearing local names. It shows that "ramie" is identical with the Chinese fiber, and that the proper name is *Bœhmeria nivea*, while *B. tenacissima* is the same as *B. Candicans*, (which has also been distributed by this department,) and that this is only a sub-variety of *B. nivia*, and not essentially different. Besides, specimens from the South, Europe, and elsewhere have been grown together in the experimental gardens, and no difference has as yet been discovered:

DEAR SIR: I have to acknowledge, with very many thanks, the parcel with ninety-five species of seeds, collected by Ravenel, together with certain living plants, which arrived in admirable order, and are very valuable additions to our stock.

I have been making inquiries about the grass-cloth nettle, which is widely cultivated from India, through the Archipelago, to China. It is the *Bœhmeria nivea*, Hook. and Arn.

B. Tenacissima, Gaud. (*Urtica tenacissima*, R X 6) is a mere concolorous variety of the same, (*B. nivea B. Candicans*, Wedd.) Chuma (or tchouma) and ramie, or caloi and "China grass," are all the same. It is also the "Dom Rheea" of Major Hanna's fibers, (fide spec. in Hv.)

I send herewith directions with regard to its cultivation, which may be useful to you, together with some seeds of the *Chryptomeria Japonica*, just received from India, and another set of the Cinchonas, from Dr. Anderson.

Very faithfully, yours,

JOS. D. HOOKER.

The laborious mode of preparation of the fiber practiced in China, as communicated by Dr. D. J. Macgowan to the Journal of the Agri-Horticultural Society of India, is as follows:

PLANTING THE SEEDS.—In China this takes place in May. Great care is first taken in the selection of seeds and in the preparation of the soil. The seed should be gathered on the appearance of frost; those produced from a recent root. After being dried, they are stowed away in a basket or jar, mixed with sand or dry earth—others say, moist earth. The jar is then covered with straw to protect the seeds from the cold, as, if exposed to its influence, they yield an imperfect plant. Before planting, the seeds are tested by immersion in water; those which float are to be rejected; those at the bottom, planted. A loose, dry soil is to be selected; if near a canal or river, it is preferable. The ground is to be well plowed, or broken finely, manured, and then divided into beds about eight yards long and one wide; the beds are to be raked, and afterward made compact with a hoe. After this, it is watered, and left for a night. On the following day raking up and pressing down is repeated. The beds being smooth, two or three tablespoonfuls of seed are mixed with a bowl of earth, and sown broadcast over half a dozen beds; then they are swept with a broom to cover the seeds. In some places the seeds are first made to sprout, and then planted in drills, which are carefully filled up. Just before the blades appear, a framework is to be constructed over the beds, on which mats should be spread to protect them from the heat of June and July. The matting must be kept moist by day, and removed at night that the blades may receive the dew of heaven. The beds are to be constantly weeded. When the plant is about two inches high, the framework and matting may be removed. When three inches high, it should be transplanted, having been well watered the night before; the blades should be taken up separately, with a portion of

earth, and planted in a field, far removed from mulberry trees, about four inches apart. It may form a border to the cerealia and vegetables, protecting them from the depredations of domestic animals, which all avoid the "*ma*." In dry weather, the field is to be watered every three or four days until the second decade, when it may be watered every tenth day.

In November and December manure it with horse or buffalo dung, earth, straw, or any rubbish, a foot or more thick to protect it from the cold. In March rake it away and expose the plant, watering it in dry weather, and using rubbish of any kind for manure. A caution is given never to use swines' dung, as it is "saltish" and hurtful to the "*ma*." In the third or fourth year, some say the second, the plant may be cut and used.

Planting the Roots.—The roots are to be cut in pieces of three or four fingers' length, and are to be planted in May, half a yard apart, and watered every three or four days. On the appearance of the blades, use the hoe, and water them; they will be mature for cutting in the second year. In the course of ten years the roots become unfruitful; the shoots may then be cut off, and, if enveloped in earth and covered with matting, can be transplanted in places thirty or forty inches distant. The ground should be first well prepared with manure, and freely manured afterward, the manure being half water. Here, as before, the plants should be hoed from time to time. In many cases fresh earth, pulverized bricks, ashes, &c., are used for manure. Some years the husbandman has his crop injured by worms; he needs, therefore, to seek for and destroy them as they appear by picking them off. It not unfrequently happens that the crop is in some places remarkably small, and sometimes the produce is very great without assignable cause.

Cutting.—It yields three crops every year. The first cutting takes place in June. Care is to be taken not to cut the young shoots; keep, therefore, an inch from the ground. In a month or two the shoots are seven or eight feet high, when the second cutting takes place; do not cut the original stem. During the latter part of September, or in October, the last cutting is performed, from which the finest cloth is made, the first being inferior, coarse and hard. After each cutting, the plant is to be covered with manure and watered, but not day by day, unless it be cloudy. At Canton, the plant is pulled up by the roots every year, from which it is evident that it differs widely from the "ma" just described.

Peeling.—On being cut, the leaves are carefully taken off with a bamboo knife, by women and children, generally on the spot. It is then taken to the house, and soaked in water for an hour, unless it is already wet by recent showers; in cold weather the water should be tepid. After this the plant is broken in the middle, by which the fibrous portion is loosened, and raised from the stalk; into the interstice thus made the operator, generally a woman or child, thrusts the finger nails and separates the fiber from the center to one extremity, and then to the other. The stripping process is very easy. It appears to be difficult to remove the fibers from the Canton "*ma*," as it is soaked in water for more than forty-eight hours before peeling, which is done by men. They first cut off the roots, and then, separating the fiber from the stock, strip it off by drawing it over a pin fixed in a plank. In either process half of the fiber is taken off at one stroke. The next process is scraping the hemp, to facilitate which the fiber is first soaked in water. The knife or scraper is about two inches long; its back is inserted in a handle of twice its length. This rude implement is held in the left hand; its edge, which is dull, is raised a line above the index finger. Strips of hemp are then drawn over the blade from within outward, and being pressed upon by the thumb, the pilous portion of one surface and the mucilaginous part of the other are thus taken off. The hemp then "rolls up like boiled tendon." After being wiped dry, it is exposed to the sun for a day, and then assorted, the whitest being selected for the finest cloth.

Bleaching and Dividing.—A partial bleaching is effected on the fibers before they undergo further division, sometimes by boiling and at others by pounding on a plank with a mallet. These are in some places repeated. After being dried in the sun, an important operation then succeeds by women and children, to whom is intrusted the tedious process of splitting the fibers, which they do with their finger nails. Expert hands are able to carry this division very far. When this process is preceded by hacking, the shreds are finer and softer. The threads are formed into balls, and subject to frequent soaking and washing. The ashes of the mulberry leaf are recommended to be put into the water with the hemp; others use lime for a whole night. Some simply expose it to dew and sun. In rainy and cloudy weather it should be exposed to a current of air in the house; moisture darkens it. The threads are now ready for splicing, the work of the women and children, the labors of the agriculturist being concluded, when the threads are rolled into balls, after being sized or stiffened with rice water. Before the thread is ready for the weaver, the balls are steamed over the vapor of boiling water in a closed oven. They are then spread out to dry. The subsequent stages, until the cloth is removed from the loom, include nothing which interests, or at least instructs artisans in the West.

Major F. S. Hannah, in the Journal of the Agri-Horticultural Society of India, describes the India mode as follows:

CUTTING AND REMOVING THE FIBER FROM THE STALKS.—The stalks are considered fit for cutting when they have become of a brown color for about six inches above the roots. To cut them the laborer seizes the leaves at the upper end with his left hand, and passing the right hand down the root, strips off the leaves and cuts the stalk close to the ground. The stalks are made up into bundles, and the scraping off the outer bark commences at the same time, or this operation is deferred until the whole crop of the plat has been cut. The scraping off of the fiber from each stalk is a very tedious operation, and is performed with a blunt-edged knife; all that is left is the fiber and woody part of the stalk, which is exposed to a hot sun for two or three days to dry. The third morning, after having been exposed to the dew for several hours, the fiber is drawn off. This is done by breaking the woody stalk right through toward the thicker end, and then separating the fiber therefrom, drawing it off slowly toward the small end, some care being required in giving the same a peculiar twist so as to draw off as much as possible. Having finished with the smaller end, what remains on the thicker end of stalk is pulled off in the same manner. It will be seen that this is a very clumsy way of extracting the fiber, and, as far as I can judge, one-fifth of the fiber still remains in the stalk, which may be taken off, however, at the second breaking, but the workers are not particular, so long as they get what they require. The hanks of the fiber are then separately twisted at the upper end and tied up in bundles of long hanks of about one seer in weight, if kept for sale. As the fiber, however, thus extracted, is quite ready for the purpose of net-making, little or nothing more is done than to open out and prepare the threads for spinning, which is done first by drawing the single hanks several times with a blunt-edged slip of bamboo, held in the right hand. This softens and strengthens the fibers, and they are more easily cut to the required fineness with the fingers and thumb nails, and then made up into small hanks ready for the spinning process, the first stage of which is performed by the women with the common *takro* or spindle, in general use throughout India, the hanks having been well opened out and spread over the top of a high, circular, open bamboo frame, set end-ways on the ground. The further operation of spinning the first threads to the requisite thickness, and the weaving of the nets, is performed by the men.

A MACHINE WANTED.

Repeated indorsements of the value of this fiber have been made by this department; and the urgent necessity for calling in the aid of mechanical invention has been set forth as the only means of arresting practical failure in its extended culture. For this animadversions have been freely meted out by parties interested only in propagation for purposes of speculation; but the same difficulty has met the British government in India, and the governor general has made the following announcement, and the consul general at Calcutta, Nathaniel P. Jacobs, in forwarding it, says: "The prize of £5,000 may possibly stimulate the inventive faculties of some American mechanical genius in competition."

1. The government of India, after communications with various agricultural and horticultural societies in India, and with persons interested in the subject, has arrived at the conclusion that the only real obstacle to the development of an extensive trade in the fiber of rheea, or China grass, is the want of suitable machinery for separating the fiber and bark from the stem and the fiber from the bark, the cost of effecting such separation by manual labor being great.

2. The demand for the fiber is now large, and no doubt might be extended with reduced prices; and there is a practically unlimited extent of country in India where the plant could be grown.

3. The requirements of the case appear to be some machinery or process capable of producing, with the aid of animal, water, or steam power, a ton of fiber of a quality which shall average in value not less than £50 per ton in the English market, at a total cost, all processes of manufacture and allowance for wear and tear included, of not more than £15 per ton. The said processes are to be understood to include all the operations performed, after the cutting and transport of the plant to the place of manufacture, to the completion of the manufacture of fiber of the quality above described. The machinery must be simple, strong, durable, and cheap, and should be suited for erection at or near the plantations, as the refuse is very useful as manure for continued cultivation.

4. To stimulate the invention or adaptation of such machinery or process, the gov-

ernment of India hereby offers a prize of £5,000 for the machine and process that best fulfills all the requirements named above.

5. Rewards of moderate amount will be given for really meritorious inventions, even though failing to meet entirely all the conditions named.

6. Arrangements will be made by the government of India for the supply of carefully dried stems, and specimens of fiber separated from the bark, but subjected to no other process, to mechanical firms and others desirous of competing, on application to the secretary to the government of India, in the home department.

7. All the machinery, &c., must be brought by the competitors at their own charge, to the locality which will be notified hereafter, probably in the northwest provinces or the Fungat, and there worked under the supervision of their own representatives for a sufficient time, to enable the judges appointed by the government to determine whether all the conditions named have been complied with. The prize machine is to be transferred, if required, to government at five per cent. above cost price; and the patent-right in any such machine to be also transferred, if required, to government, on the latter securing to the patentee a royalty of five per cent. on the cost price of all machines manufactured under the patent during its currency.

8. One year from the date of this advertisement will be allowed for the preparation of the machines and their transport to the locality named for the competition; and the trials will then be made and the decision of the judges announced. If no invention of sufficient merit is received in the above-named period to obtain the prize offered, the government will continue to allow machines to be tendered for trial till the end of two years from the same date, after which, or on award of the prize, the offers herein made will be withdrawn.

THE HATEFUL OR COLORADO GRASSHOPPER, (*Caloptenus spretus*, Uhler.)

As the farmers east of the Mississippi River are deeply interested in knowing whether they are liable to the visitation of this insect, we present such information as has been received since the last publication on the subject. An article in the American Entomologist gives particulars in regard to its invasion of Kansas, Nebraska, Western Missouri, and Western Iowa. Owing to the warmer climate of this section when compared with that of the Rocky Mountains, the spring hatch reach maturity, take wing, and disappear from the 24th of June to the 14th of July, whereas the usual period for the Rocky Mountain swarms to invade these sections ranges from August 27 to the first of October. In 1868, however, the summer being unusually hot, they reached Kansas early in August, two weeks sooner than usual. This insect matured and took wing in Iowa between the 1st and 5th of July, reaching Davenport, 150 miles east of the place from which it started. Although it did considerable damage in its larval and pupa states, but little injury was done by it after taking flight. A large swarm was observed in Jackson County, Minnesota, July 9, 1868, moving north, doing little damage. About the middle of August vast numbers of grasshoppers, apparently of this species, were seen in Lafayette County, Wisconsin, traveling from north to south. No serious injury is reported of this invasion. Mr. Thomas, a member of Dr. Hayden's geological party, found this insect quite abundant, in the perfect state, at St. Joseph, Missouri, June 17, 1869, but when he reached Denver, almost a month later, it was just passing from the pupa to the perfect state.

These facts make it certain that the swarms which traverse the region immediately west of the Mississippi, between the middle of June and the first of August, belong to a different brood from those which invade Kansas and the West between the middle of August and the first of October. This gives us a fixed stand-point for investigation, from which to deduce another conclusion equally certain, that this earlier brood of the States is the produce of the eggs deposited by the western hordes of the

previous summer and fall. It also appears to be pretty well ascertained that the spring brood, hatched in the Mississippi valley, never does much injury after it commences flying, and produces no further broods.

The following are extracts from a letter written by Mr. Byers, of Denver, Colorado, in answer to some inquiries on this subject:

Question. When the swarms (flying) appear in that immediate section, where do they usually come from?

Answer. From some point between north and west, usually about north 30° west. The most destructive flight we ever had here was in 1864. Early in the season we heard of great swarms of grasshoppers hatching out upon the plains of Montana, in the valleys of the Three Forks of the Missouri River, and along the Yellowstone. Later we heard of their progress south and east. August 21st they commenced coming into the St Vrain cañon or valley, about fifty miles north of Denver; about five days afterward the swarm reached Denver, darkening the sky and often covering the streets. They devoured corn, tomatoes, potato-vines, onions, &c., almost entirely, and within the space of five days. The column moved on at about the rate of ten miles per day, and left the (then) settled portions of Colorado within the valley of the Arkansas. We heard nothing more of them.

But myriads remained or continued arriving from the north and west, and deposited their eggs in plowed fields and upon rolling, sandy, and gravelly land, where the soil was unbroken. In September and October most of them died. In March following the eggs deposited by them began to hatch, first upon the sandy and gravelly hill-sides facing the sun, and, somewhat later, in the fields and colder soils, continuing to appear until late in May. Where numerous, they literally devoured every green thing. If a wheat-field (in which none were hatched) was attacked, they moved across it, or from the circumference to the center, with the regularity and effect of advancing flames. The swarms of 1864 destroyed corn and other late crops; the young of 1865 ate up wheat and other small grains. The comparative damage was probably as one to four, the young brood being far the most destructive.

Mr. Byers, in answer to the request to describe their method of flight, and to state what relation it bears to the wind, says:

Generally they move leisurely, the direction of their flight being influenced largely by the direction of the wind. In fact I attribute their general course mainly to the prevaling winds, which come at that season, almost invariably from the northwest. Toward noon, in bright warm days, they rise by circular flights, each seeming to act individually. When they have reached a considerable height they sail away, with tolerable regularity, in one direction. If there is no wind, many of them continue whirling about in the air, but away beyond, myriads can be seen moving across the sun toward the southeast, looking like snow-flakes. If there is a change in the atmosphere, such as the approach of a thunder-storm or gale of wind, they come down precipitately, seeming to fold their wings and fall by force of gravity. If not interrupted by such causes they descend during the afternoon. The swarm of 1864 and brood of 1865 are the only general visitations that have scourged Colorado. Similar ones—both flights and broods—have visited portions of the Territory each year since, but generally confined to particular localities or narrow belts. The swarms that invaded Kansas and portions of western Iowa in 1867 were traced from their hatching grounds in western Dakota and Montana, along the east flank of the Rocky Mountains, and in the valleys and plains of the Black Hills, and between them and the main Rocky range. In 1852 I first observed this insect in the valley of the South Fork of the Columbia, not far from Fort Hall. A swarm, lasting two or three days, passed over from about west-southwest, moving with the wind, at times darkening the sun, covering horses, cattle, and wagons, against which they were driven. The Digger and Snake Indians gathered them for food. In 1865, those of the spring brood which were not injured by fly which attacked them, as soon as their wings were sufficiently developed, took to flight and we lost trace of them on the plains. The same year, in the latter part of August, in the valley of South Boulder, close up to the Snowy range, I found young grasshoppers very numerous, varying in size from those just hatched out to those one-third grown. I know that winter caught and killed these before they were able to fly. Late in 1867 the Middle Park was invaded by a swarm which came from the northwest, and deposited their eggs there. In 1868 those eggs began to hatch, in the lowest and warmest portions of the Park, in June, increasing in July, and continuing to hatch through August in the higher portions of the Park, near the snow-rim. Those hatched first moved from their native place up the Park eastward, but never got out of it. The later broods never left their hatching ground. All were destroyed by the fall snows. From the middle to the 25th of August, 1868, I was on and near the Snowy range, east of Middle Park. There was during this time a large daily flight of grasshoppers from about west-northwest, reaching apparently to the highest limit of vision, even to those standing on the highest peaks. Daily, showers of rain, snow, and

hail were occurring from 12 m. to 3 p. m., during which time these insects were beaten down. They became so chilled and benumbed that they never rose again. The snow fields in many places were literally covered with the dead and dying. Bears were plentiful, feeding and fattening upon them. Hundreds, yes, thousands of bushels might have been shoveled from the cold surface of the snow. I know they did not come from the adjacent Middle Park, because those bred there had not attained their full growth, and never did, as before stated. These migrating swarms, therefore, must have come from beyond the range—from the Green River basin, or, as I think, from the wide, hot, dry plains of Utah.

Such are the personal observations of Mr. Byers, who has been in the West since 1852.

These statements, together with the fact now pretty well established, that the destructive grasshopper of Utah is the *C. spretus* and not the *Oedipoda coralipes*, (Hald.,) show that it is more than probable these swarms do often cross the Rocky Mountain range. They show that, traveling in the course of the wind, they can and do traverse the plains from the mountain base to the borders of Kansas. But it is quite likely that the swarms which cross the plains are those hatched in Colorado and Wyoming from the eggs deposited by the swarms of the previous year east of the mountains. The prevailing opinion of entomologists and others who have studied the history and habits of this species is, that it will never become a permanent resident of that section of the Mississippi Valley which lies immediately west of the river, and that there need be no fear on the part of agriculturists residing east of it that they will ever be troubled by its invasions; but, as has been the case in the settlement of other portions of the country, even in the West, where most damage is done by them, as the country becomes more densely populated, and climatic changes are brought about, this species will sink back to its normal condition.

TESTS OF DEPARTMENT SEEDS.

Dr. Swasey, editor of the Southern Horticulturist, published at Yazoo City, Mississippi, makes the following report on department seeds:

Bates's early sugar corn proves to be an early, productive, and delicious variety of small-eared red corn, and, from its color, quite a novelty. As a first early sort it is desirable, but for the main early crop we decidedly prefer Brill's early sugar corn, which ripens a little later, but is of equal excellence and productiveness, and much larger. This is one of the best early varieties of sweet corn that we have ever tested out of a dozen or more. Indispensable to every amateur and market garden.

The Early Wakefield cabbage proved to be the best early variety, and should be planted extensively as the earliest good cabbage. The heads are small, but solid; tender, and of excellent flavor; and as the plants can be set a foot apart in two-feet rows, perhaps as large a weight of solid white heads can be raised of this variety as of those which are larger.

The Epicurean pea is one of the most delicious peas we have ever tasted; and if it was a first rate bearer, (which last year it was not,) and the pods better filled, we should unhesitatingly pronounce it the best of its season, which is second early.

The Bossin lettuce is a magnificent variety of the Cos family, and beyond all comparison the best of that class that we have ever seen. Planted in March, without extra manuring, many of the plants attained to a diameter of more than twenty inches, and single leaves to over one foot in width. And its delicious tenderness remained unimpaired to the very last—even through the hot and dry weather of July. The flavor was as delicate as its texture, having scarcely a trace of that bitterness so common to non-heading varieties.

McLean's Little Gem pea is rightly named, for it is both small and delicious. Of all the dwarf varieties we have tried, this has proved about the only one worth cultivating. Grows about a foot high, and is literally covered with well-filled pods of large, white, "wrinkled marrows," the richest of peas. Second early.

Simons's Early Blood Turnip beet is much like the old Blood Turnip beet, except being of a lighter color and somewhat smaller.

AGRICULTURE IN LANE COUNTY, OREGON.

This county extends from the Pacific Ocean on the west to the Cascade range on the east, and covers an area of 2,240,000 acres of land, a large amount of which is well adapted to grain growing, stock raising, and agriculture generally.

It was first settled in 1846, but still contains large quantities of vacant land, well adapted to agricultural and lumbering purposes. The soil in the small valleys, and at the immediate foot of and between the hills and mountains, is dark and porous, formed by the admixture of decayed vegetation and a grayish clay loam. This soil, though exceedingly productive, seems to be of a thirsty nature, suffering if the summer drought is of long duration. Along the banks of the rivers and more extended valleys the soil is a rich alluvial deposit of decomposed earth and vegetable mold, producing fine crops of grain, grass, fruit, garden vegetables, corn, roots, and, in fact, all the necessaries and luxuries of life. As you leave these bottoms, the soil of the prairies, with but few exceptions, although showing strong alluvial indications, seems to be of a fine quality, and composed of grayish, calcareous, sandy loam.

These lands form a part of the great natural wheat fields of Oregon. And although readily producing grass, fruit, and vegetables of almost every variety, these prairie lands are especially adapted to the raising of wheat, oats, barley, flax, and every kind of small grain.

The kinds of timber found in this county are chiefly fir, cedar, pine, hemlock, oak, ash, maple, and alder, pretty well distributed, and of quality and size adapted to all lumbering purposes.

The population is estimated at about seven thousand. The number of acres in cultivation is about sixty thousand. The yield of various crops for 1868 was as follows:

Wheat, bushels	169,715
Barley, bushels	10,802
Oats, bushels	74,769
Corn, bushels	8,113
Apples, bushels	28,818
Potatoes, bushels	220,263
Butter, pounds	237,454
Cheese, pounds	15,690
Tobacco, pounds	12,888
Wool, pounds	159,715
Hay, tons	4,227

The stock in the county, as estimated for the same year, was as follows:

Cattle	15,000
Horses	6,000
Hogs	12,000
Mules	300
Sheep	60,000

There are thirteen saw-mills and four grist-mills in the county.

PREMIUM CROP.

The New York Agricultural Society, at their winter exhibition, found the following to be the best crop of wheat, though no award could be given for less than five acres:

E. S. Hayward, of Rochester, exhibited a superior sample of Diehl

wheat. Area of field, 1.95 acres; expense of seed, cultivation, &c., (including rent of ground, $28,) $67 80; yield wheat, 88 bushels; sold at $1 80 per bushel, $158 40; straw, $30. Total, $188 40. Net profit, $120 60.

The soil is a gravely loam, not drained, but high land nearly level. The previous crop was beet seed, raised without manure. The crop before that was corn on a timothy sod, manured on the surface after plowing with thirty loads of well-rotted stable manure per acre. The land on which this crop was raised was plowed about the middle of September, sown broadcast, at the rate of one bushel and a half per acre, after which it was harrowed and rolled with a heavy iron roller. It made its appearance in four or five days above the ground, and at the commencement of winter the growing wheat nearly covered the ground. Commenced harvesting on the 27th; finished on the 29th July. It stood in the field five days, when it was drawn to the barn and immediately threshed and cleaned and weighed, yielding eighty-eight bushels of clean wheat, sixty pounds per bushel, making forty-five bushels and seven pounds per acre.

Expense of crop.

Plowing	$4 50
Harrowing	3 00
Sowing	50
Seed, three bushels, at $2 60	7 80
Reaping and binding	8 00
Hauling	3 00
Threshing and cleaning	10 00
Interest on land at $200	28 00
Marketing crop	3 00
	67 80

Credit.

Eighty-eight bushels, at $1 80	$158 40
Straw	30 00
	188 40

Net profit on 1.95 acre, $120 60.

PREMIUM FLAX.

Zerah Rider, Cambridge, Washington County, received a premium of fifteen dollars on a crop of flax grown on 2.12 acres of land. The land on which this crop was grown is a slate loam, in pasture, and manured the previous year with twenty loads of barn-yard manure spread on the surface and plowed in, and planted in corn and cultivated in the usual way.

Expenses of crop.

Two bushels seed	$6 00
Plowing, sowing, and harrowing	6 00
Pulling flax, $24; drawing, $3	27 00
Rippling and cleaning seed	7 00
Carting and spreading	3 00

Taking up and carting to mill	$4 00
Interest on land	14 00
Dressing and marketing	64 00
	131 00

Credit.

$18\frac{16}{54}$ bushels seed	$43 80
1,280 pounds of flax, at 16 cents	204 80
	248 60
Expenses	131 00
Net profit	117 60

Total acreage and percentage proportions of each kind of corn and green crop in each division of the British United Kingdom.

Description of crops.	Year.	ENGLAND.		WALES.		SCOTLAND.		IRELAND.		Total for Brit. United Kingdom, including Isle of Man and Channel islands.	
		Acres.	Percentage proportions of each kind of corn and green crop.	Acres.	Percentage proportions of each kind of corn and green crop.	Acres.	Percentage proportions of each kind of corn and green crop.	Acres.	Percentage proportions of each kind of corn and green crop.	Acres.	Percentage proportions of each kind of corn and green crop.
CORN CROPS.											
Wheat	1868	3, 396, 890	45. 3	130, 552	23. 8	124, 683	9. 1	286, 790	13. 1	3, 951, 018	33. 9
	1869	3, 417, 054	43. 9	135, 562	24. 4	135, 741	9. 6	281, 117	12. 7	3, 981, 989	33. 2
Barley or bere	1868	1, 780, 201	23. 7	151, 608	27. 7	219, 515	15. 8	188, 252	8. 5	2, 348, 068	20. 1
	1869	1, 864, 088	24. 0	157, 582	28. 4	229, 810	16. 2	223, 338	10. 1	2, 483, 277	20. 7
Oats	1868	1, 488, 470	19. 9	257, 153	46. 9	1, 011, 430	72. 9	1, 699, 919	77. 5	4, 469, 387	38. 3
	1869	1, 511, 975	19. 4	252, 970	45. 5	1, 017, 775	71. 8	1, 684, 788	76. 3	4, 480, 125	37. 3
Rye	1868	38, 397	. 5	2, 110	. 4	6, 389	. 4	7, 854	. 4	54, 827	. 5
	1869	52, 709	. 7	2, 610	. 5	8, 780	. 6	8, 770	. 4	72, 986	. 6
Beans	1868	503, 700	6. 7	3, 777	. 7	22, 423	1. 5	8, 813	. 4	538, 943	4. 6
	1869	548, 257	7. 0	3, 944	. 7	23, 003	1. 6	8, 833	. 4	584, 251	4. 9
Peas	1868	291, 560	3. 9	2, 673	. 5	2, 001	. 3	1, 157	. 1	297, 612	2. 6
	1869	390, 950	5. 0	3, 160	. 5	2, 067	. 2	1, 124	. 1	397, 483	3. 3
Total of corn crops	1868	7, 499, 218	100. 0	547, 873	100. 0	1, 386, 441	100. 0	2, 192, 785	100. 0	11, 659, 855	100. 0
	1869	7, 785, 033	100. 0	555, 828	100. 0	1, 417, 176	100. 0	2, 207, 970	100. 0	12, 000, 111	100. 0
GREEN CROPS.											
Potatoes	1868	327, 173	12. 7	47, 431	37. 0	166, 939	24. 8	1, 034, 853	71. 1	1, 584, 213	32. 6
	1869	356, 829	12. 9	49, 107	38. 5	179, 275	26. 0	1, 041, 837	70. 9	1, 635, 347	32. 3
Turnips and Swedes	1868	1, 605, 980	62. 1	70, 350	54. 8	488, 812	72. 7	320, 066	21. 9	2, 495, 536	51. 3
	1869	1, 614, 580	58. 5	67, 098	52. 6	489, 848	71. 2	321, 880	21. 9	2, 502, 512	49. 4
Mangold	1868	244, 363	9. 4	3, 955	3. 1	723	. 1	19, 067	1. 3	268, 780	5. 5
	1869	287, 182	10. 4	4, 528	3. 6	1, 032	. 2	21, 029	1. 4	314, 421	6. 2
Carrots	1868	11, 959	. 5	368	. 3	938	. 1	3, 789	. 3	17, 815	. 4
	1869	13, 033	. 5	324	. 3	987	. 1	3, 702	. 3	18, 831	. 4
Cabbages, kohl rabi, and rape	1868	111, 156	4. 3	769	. 6	3, 158	. 5	42, 268	2. 9	157, 525	3. 2
	1869	141, 156	5. 1	795	. 6	3, 300	. 5	42, 237	2. 9	187, 667	3. 7
Vetches, lucerne, and other green crop, except clover or grass.	1868	284, 388	11. 0	5, 419	4. 2	11, 985	1. 8	36, 264	2. 5	341, 888	7. 0
	1869	346, 318	12. 6	5, 600	4. 4	14, 075	2. 0	38, 210	2. 6	407, 155	8. 0
Total of green crop	1868	2, 585, 019	100. 0	128, 292	100. 0	672, 555	100. 0	1, 456, 307	100. 0	4, 865, 057	100. 0
	1869	2, 759, 098	100. 0	127, 452	100. 0	688, 51 7	100. 0	1, 468, 895	100. 0	5, 065, 933	100. 0

Statement of area and acreage under crops and grass for hay in various British colonies during 1867 and 1868.

[The area and acreage are stated in English statute acres.]

Countries.	Total area.	Total acreage under crops and grass, &c.
New South Wales	206, 999, 680	413, 164
Victoria	55, 571, 840	631, 207
South Australia	245, 329, 920	810, 734
Western Australia	640, 000, 000	95, 533
Queensland	433, 920, 000	70, 880
Tasmania	16, 777, 600	172, 393
New Zealand	68, 005, 760	770, 872
Natal	10, 332, 800	121, 723
Cape of Good Hope	128, 390, 400	.....

Statement of the estimated quantities, in English imperial bushels, of the principal crops produced in the various British colonies, 1867 and 1868.

Countries.	Wheat.	Oats.	Maize.	Potatoes.
				Tons.
Canada, Dominion of	36, 365, 000	51, 600, 000	3, 400, 000	.....
New South Wales	1, 433, 807	156, 965	3, 132, 505	33, 482
Victoria	3, 411, 663	2, 333, 472	11, 345	117, 787
South Australia	2, 579, 894	78, 554	.....	6, 538
Tasmania	894, 814	632, 461	.....	37, 568
New Zealand	1, 619, 169	2, 655, 294	.....	56, 538
Natal	33, 600	10, 992	1, 192, 806	*268, 239

* Bushels.

Statement of the estimated quantities of the principal crop product in foreign countries, in imperial bushels, according to the latest returns.

Products.	Sweden, 1867.	Norway, 1865.	Holland, 1867.	France, 1868.	Greece, 1867.
Wheat and spelt	1, 487, 433	271, 384	3, 688, 504	322, 067, 256	13, 432, 268
Barley	9, 292, 019	3, 415, 546	4, 214, 385	54, 924, 897	5, 738, 414
Rye	10, 591, 001	651, 390	6, 351, 062	79, 542, 149	*1, 091, 838
Peas	1, 548, 540	186, 561	882, 335	12, 643, 890	*22, 008
Beans			1, 588, 955		*4, 110, 820
Buckwheat	19, 739	.....	4, 074, 868	31, 043, 526	469, 560
Maize	.....	.....	.....	30, 144, 370	8, 546, 225
Oats	24, 606, 713	7, 881, 359	11, 054, 142	200, 326, 407	528, 649

* Pounds.

Statement of the estimated average yield, per statute acre, of the principal crops, in imperial bushels, in various foreign countries.

Countries.	Date of return.	Wheat and spelt.	Barley.	Oats.	Rye.	Beans and peas.	Maize.	Potatoes.
Sweden	1867	.....	.....	.....	.....	11. 9	.....	82. 2
Norway	1865	22. 8	28. 4	35. 8	22. 3	19. 6	.....	236. 1
Holland	1867	18. 9	36. 5	42. 4	12. 9	21. 1	.....	151. 7
France	1868	18. 4	19. 9	24. 5	16. 6	15. 0	18. 5	129. 0
Greece	1867	35. 7	48. 7	51. 5	.....	.....	47. 1	.....

Statement of the number of live stock in the United Kingdom and in various foreign countries, furnished by the statistical departments of the respective countries.

Countries.	Date of return.	Horses.	Cattle.		Sheep and lambs.	Pigs.
			Cows.	Total.		
Great Britain	1869	1, 461, 061	2, 135, 070	5, 313, 473	29, 538, 141	1, 930, 452
Ireland	1869	527, 248	1, 503, 714	3, 727, 794	4, 648, 158	1, 079, 793
Total United Kingdom, including Isle of Man and Channel islands	1869	1, 998, 147	3, 656, 304	9, 078, 282	34, 250, 272	3, 028, 394
Russia in Europe, (exclusive of Poland and Finland)	Average of 1859 to 1863.	.....	.....	22, 816, 000	39, 315, 000	9, 517, 000
Russia in Asia				2, 628, 000	5, 815, 000	580, 000
Sweden	1867	433, 959	1, 211, 468	1, 942, 137	1, 621, 931	362, 371
Norway	1865	149, 167	690, 777	953, 036	1, 705, 394	96, 166
Denmark	1866	352, 603	811, 831	1, 193, 861	1, 875, 052	381, 512
Prussia	1866	2, 313, 817	4, 865, 898	7, 996, 818	22, 262, 087	4, 875, 114
Wurtemberg	1867	.....	465, 943	911, 013	655, 856	254, 888
Bavaria	1863	.....	1, 521, 113	3, 162, 387	2, 039, 983	921, 456
Saxony	1867	107, 222	413, 755	625, 260	304, 087	325. 564
Holland	1867	255, 130	.....	1, 361, 278	1, 027, 215	302, 514
Belgium	1856	277, 311	.....	1, 257, 649	583, 485	458, 418
France	1866	2, 313, 232	6, 694, 502	12, 733, 188	30, 386, 233	5, 889, 624
Spain	1865	.....	.....	2, 904, 598	22, 054, 967	4, 264, 817
Italy	1867	.....	.....	3, 708, 635	11, 040, 339	3, 886, 731
Austria	1864	3, 460, 400	6, 094, 865	13, 660, 322	16, 573, 459	7, 914, 855
Switzerland	1866	.....	627, 116	992, 895	445, 400	304, 191
Greece	1867	98, 938	51, 994	109, 904	2, 539, 538	55, 776

WATER FOR TEAMS.

Levi Bartlett, of Warner, New Hampshire, writes as follows concerning provisions for watering teams on public highways:

In the article in the report of 1868 on county roads and road laws, page 361, relative to "water for teams," it is said: "It is a matter of so great importance that a full supply of water by the roadside be provided for teams, at intervals of at least an average of five miles, that the subject should no longer be neglected, but a provision for securing a supply should be made in the county road laws." I am very happy to say that such a provision has been made by our State laws. In the town where I reside (Warner, New Hampshire) there are on the main traveled road through the town four of these permanent watering troughs, and four on the cross roads. The owners receive from the town treasury two dollars, each, annually. I think every tax-payer in the town is perfectly satisfied with the arrangement. Two of the troughs are supplied with water by lead or wooden pipes, the others are supplied from permanent springs issuing from the base of hills, near the roadside, in open spouts. Such is the temperature of these spring waters that there is no trouble with ice in our coldest winters.

GRAIN IN NORTHERN RUSSIA.

The following has been received from Eugene Schuyler, United States consul at Revel, (on the Gulf of Finland, west of St. Petersburg,) Russia:

According to the results of the harvests of 1869 the exports ought to experience a sensible augmentation, for the cereals are so abundant as to allow the filling up of the reserve storehouses, which had been entirely exhausted, besides furnishing enough for local consumption, and leaving a large quantity for foreign demands.

The distilleries, which had suffered so much in consequence of the poor harvests, are reviving, and in Esthonia there are already 133 in full activity. This prosperous condition is not due solely to the abundance of grain, but in great part to a chance event which has very much increased the prices of whisky (*vodka*) in the government of St. Petersburg—the burning of the bridge over the river Usta, on the Moscow-Petersburg railway, which occurred in the early days of November. The arrivals from Moscow

and the governments beyond Moscow being suddenly cut off, recourse was necessarily had to the Baltic provinces, which have done an extensive business.

Wheat, which is but little cultivated in these regions, has given satisfactory results wherever it has been sown. The price is about 180 rubles per last. (This is equivalent to about $1 33 per bushel.)

Rye is abundant, but light in weight, which makes it little fit for export. The price has sensibly fallen from 12 rubles to 7 the tchetvert, and at that there are no buyers; only 6 rubles per tchetvert of 180 pounds is offered.

Barley leaves nothing to be desired in regard to quality, but it is to be regretted that the rains of September and October have given it an unequal color. Prices are now at 6½ rubles the tchetvert; before the harvest they were 12 rubles.

Oats are excellent, both in quality and quantity, and a better harvest has never been known. The advantageous prices ought to increase the foreign demand. The price is 3½ rubles the tchetvert, and the weight is generally 78 pounds.

The harvest of potatoes has not been everywhere equal, but it is generally satisfactory, and the peasants have enough to restore to the reserve warehouses the cereals they had withdrawn for seed and food.

The Russian tchetvert, or quarter, is equal to 5.46 bushels English. The last is equal to 16 tchetverts. Ten Russian pounds equal 9 English pounds. The ruble at present rates of exchange is equal to about 60½ cents.

FACTS FROM VARIOUS SOURCES.

William Magie, of Butler County, Ohio, has sold this season thirty-eight hogs, averaging 528.87 pounds each, dressed weight. The average gross weight was 611 pounds. These hogs were twenty-one months old. In Burlington County, New Jersey, Isaac Harrison killed a lot of thirty-three hogs which averaged 515½ pounds, dressed weight; Joshua Forsyth killed ten hogs which averaged 545 pounds; and Joseph Holloway killed thirty-eight head, littered last spring, (killed second week in February,) which averaged 348 pounds, and nine hogs which averaged 500 pounds.

The Philadelphia Commercial List states that the oyster trade of that city employs 225 boats, averaging 23 tons burden, with an average of five men to each boat. Each boat averages nine trips per year, and brings about 166,000 oysters per trip. The whole fleet brings up an aggregate of 324,000,000 during the season. The several railroads also bring in 8,000,000 oysters, making an aggregate of not less than 332,000,000 oysters used in the trade of Philadelphia each year, and it is estimated that if all the facts could be reached the figures would amount to 500,000,000. The crop averages $5 per thousand at a low estimate.

Mr. Hoag, a California silk culturist, states that he has cleared above all expenses $3,500 from the mulberry product of three and a half acres. The labor and other expenses amounted to $472. Even last year, a bad one for worms, $796 clear profit was realized per acre, allowing $3 50 per ounce for the eggs, which are always marketable on the ground for cash, European agents seeking them with eagerness. Mr. H. thinks Europe will give a steady market for $9,000,000 worth of eggs per year, and that California can monopolize it.

The largest dairy in California is in Marion County, and consists of 3,600 milch cows, mostly of the Devon and the Durham breed. The quantity of butter made last year was 400,000 pounds, for which 45 cents per pound was realized. About 500 heifer calves are raised every year. About 2,000 hogs are fattened on the skimmed milk and buttermilk, and 250 to 300 cows and beef steers are sold off each year.

Orleans County, New York, before the close of navigation, shipped 218,911 barrels of apples, valued at about $592,000. Niagara County shipped about the same amount, realizing a rather higher average price,

making the receipts of those two counties for apples alone over eleven hundred thousand dollars. Large quantities were also sent to market from adjoining counties. One town in Monroe County shipped about 48,000 barrels.

Peaches ripen in Florida as follows: Hale's Early, June 10 to 15; Early Tillotson and Yellow St. John, June 15 to 20; Canary, June 30, Amelia, July 1 to 10; Bergen Yellow, July 10; Grosse Mignonne, July 15; Late Admirable, July 20; Oldmixon Free, July 15 to 30; Great Eastern, July 20; Pucelle de Malines, July 10; Late Rareripe, August 1; Lagrange, August 15 to 30; Gaylord, August 15; Owen's Seedling, August 1 to 15; Osceola, September 1; Piquet's Late, September 1 to 15; Fruitland's Seedling, September 5 to 20; President Church, September 15; Lady Parham, October 1; Baldwin's Late, October 10; Julia, October 30.

The Rocky Mountain News gives the following estimates of crops of small grain last year in the valleys of St. Vrain, Left Hand, and Boulder:

St. Vrain.—Wheat, 19,414 bushels; oats and barley, 51,630 bushels; against 21,673 bushels of wheat and 31,023 bushels of oats and barley in 1868. The averages per acre were: Wheat, 23 bushels; oats, 35 bushels. The corn crop generally good. Potatoes a failure.

Left Hand.—Wheat, 10,618 bushels; oats and barley, 18,217 bushels; against 10,350 bushels of wheat and 13,707 bushels of oats and barley in 1868.

Boulder.—Wheat, 45,060 bushels; oats and barley, 62,715 bushels; against 46,350 bushels of wheat and 42,000 bushels of oats and barley in 1868. These estimates are based upon figures obtained personally from a large proportion of the farmers of the valleys named.

METEOROLOGY.

[COMPILED IN THE DEPARTMENT OF AGRICULTURE FROM REPORTS MADE BY THE OBSERVERS OF THE SMITHSONIAN INSTITUTION. NOTES OF THE WEATHER INCLUDE REPORTS RECEIVED UP TO FEBRUARY 18, ONLY; THE TABLE INCLUDES THOSE RECEIVED UP TO FEBRUARY 21.]

JANUARY, 1870.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, the amount of rain and melted snow, (in inches and tenths,) for January, 1870, by the observers and at the stations named. Daily observations at 7 a. m., and 2 and 9 p. m

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
MAINE.				°		°	°	*In.*
Houlton	Aroostook	Chas. H. Fernald	23	46	14	—22	17.2	7.90
Steuben	Washington	J. D. Parker	20	56	14, 31	— 5	27.2	10.64
Orono	Penobscot	M. C. Fernald	23	44	14	—14	22.4	5.62
Williamsburg	Piscataquis	Edwin Pitman	18	40	14	—12	17.8	5.37
West Waterville	Kennebec	B. F. Wilbur	3	45	14	— 7	24.8	6.44
Gardiner	do	R. H. Gardiner	3, 23, 27	42	14	— 3	25.9	6.13
Lisbon	Androscoggin	Asa P. Moore	4	50	14	— 8	26.1	5.80
Standish	Cumberland	John P. Moulton	23	51	14	1	27.9	4.98
Norway	Oxford	H. D. Smith	23	48	14	—11	23.4	5.50
Cornish	York	Silas West	23, 27	44	14	— 2	24.9	5.71
Cornishville	do	G. W. Guptill	23	48	14	— 2	28.8	7.55
Averages							24.2	6.51
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	17	42	14	—12	21.6	4.46
Whitefield	do	L. D. Kidder	17	52	14	—12	22.3	4.53
Goffstown Center	Hillsborough	Alfred Colby	27	55	10, 14, 15	10	29.3	4.20
Averages							24.4	4.40
VERMONT.								
Lunenburg	Essex	H. A. Cutting, A. M	17, 23	42	14	—12	22.1	4.55
North Craftsbury	Orleans	Rev. E. P. Wild	23	41	14	—18	18.8	4.67
Newport	do	J. M. Currier	17	42	14	—22	21.1	6.40
East Bethel	Orange	Chas. S. Paine	23	47	14	— 7	25.0	6.71
Woodstock	Windsor	Doton and Miller	23	49	14	— 4	23.6	6.20
Near St. Albans	Franklin	A. H. Gilmour	17	44	14	—30	21.2	.....
West Charlotte	Chittenden	Miss M. E. Wing	17	47	14	— 8	27.0	2.66
Middlebury	Addison	H. A. Sheldon	17	52	14	—10	27.0	2.88
Panton	do	D. C. Barto	23	44	14	—14	27.9	4.20
Castleton	Rutland	Rev. R. G. Williams	23	46	14	.....	27.2	2.21
Averages							24.1	4.48

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
MASSACHUSETTS.				°		°	°	*In.*
Kingston	Plymouth	G. S. Newcomb	27	56	9	13	33.9	6.05
Topsfield	Essex	S. A. Merriam	23	54	9	2	31.1	6.04
Lawrence	....do	John Fallon	17, 23	55	9	5	30.4	6.98
Georgetown	....do	S. A. Nelson	23	56	14	9	31.6	8.50
Boston	Suffolk	F. H. Appleton, A. B	23	65	9	12	34.1	.....
Milton	Norfolk	Rev. A. K. Teele	23	54	9	9	35.9	5.32
Cambridge	Middlesex	Mrs. J. B. Perry	23	62	9	6	36.0	.....
North Billerica	....do	Rev. E. Nason and son	2	56	9	4	32.4	.....
West Newton	....do	Jno. H. Bixby	23	62	9	4	34.8	.....
New Bedford	Bristol	Sam'l Rodman	26	51	9	9	35.4	5.96
Worcester	Worcester	Jos. Draper, M. D	23	54	9	6	31.4	6.34
Mendon	....do	Jno. G. Metcalf, M. D	17	56	9	2	31.4	6.20
Lunenburg	....do	Geo. A. Cunningham	23	54	9	4	30.2	8.25
Amherst	Hampshire	Prof. E. S. Snell	23	54	9	5	30.8	5.87
Richmond	Berkshire	Wm. Bacon	26	48	14	7	29.2	10.45
Williams College	....do	Prof. A. Hopkins	23	54	9, 14	2	29.4	5.46
Hinsdale	....do	Rev. E. Dewhurst	23	48	8	— 8	24.6	5.10
Averages							31.9	6.66
RHODE ISLAND.								
Newport	Newport	W. H. Crandall	25	51	9	17	36.9	5.75
CONNECTICUT.								
Columbia	Tolland	Wm. H. Yeomans	27, 28	58	9	2	34.4	11.50
Middletown	Middlesex	Prof. Jno. Johnston	2, 17	54	9	4	32.9	5.13
Colebrook	Litchfield	Charlotte Rockwell	23	53	9	— 7	27.8	4.73
Brookfield	Fairfield	Rev. S. W. Roe	2	58	9	15	35.7	6.40
Averages							32.7	6.94
NEW YORK.								
Moriches	Suffolk	E. A. Smith & daugh'rs	26, 27	59	9	12	40.5	5.00
South Hartford	Washington	G. M. Ingalsbe	17	56	14	— 9	29.7	2.30
Fort Edward	....do	Prof. J. S. Cooley	17	52	14	— 4	29.8	.....
Hudson	Columbia	Dr. G. P. Hachenberg	23	54	14	5	33.2	2.84
Garrison's	Putnam	Thos. B. Arden	23	58	9, 14	11	33.6	5.04
Throg's Neck	West Chester	Miss E. Morris	24	56	9	8	32.0	.....
White Plains	....do	O. R. Willis	16, 18	60	9	14	35.6	.....
Deaf and Dumb Ins	New York	Prof. O. W. Morris	23	56	9	15	37.9	5.10
Rutgers Fem. Col	....do	Mrs. M. M. Marsh	13	64	9	14	39.7	4.91
Flatbush	Kings	Rev. Eli T. Mack	22	56	10	18	36.8	4.31
Glasco	Ulster	D. B. Hendricks	24	55	14	7	32.2	4.74
Newburg	Orange	Jas. H. Gardiner	23	57	14	12	35.3	3.54
Minaville	Montgomery	J. W. Bussing	17	50	14	— 2	27.1	4.76
Sloansville	Schoharie	G. W. Potter	17	68	14	8	29.6	.....
Cooperstown	Otsego	G. Pomeroy Keese	17	57	14	— 1	28.0	4.17
Gouverneur	St. Lawrence	C. H. Russell	17	49	14	—14	22.5	4.25
North Hammond	...do	C. A. Wooster	17	50	14	—14	24.4	5.94
Houseville	Lewis	Walter D. Yale	17	49	14	—11	24.6	6.49
Leyden	...do	C. C. Merriam	17	47	14	—13	23.1	4.15
Utica	Oneida	J. Gilbert Williams	26	53	14	5	31.1	2.98

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
NEW YORK—Con'd.				°		°	°	*In.*
South Trenton	Oneida	Storrs Barrows	17	52	14	— 2	26.1	4.47
Cazenovia	Madison	Prof. Wm. Soule	17	53	14	— 1	28.0	.....
Oneida	....do	S. Spooner, M. D	17, 18	56	14	2	29.7	2.39
Depauville	Jefferson	Henry Haas	17	47	14	— 9	24.6	4.95
Oswego	Oswego	Wm. S. Malcom	23	57	14	1	30.1	3.28
Palermo	....do	E. B. Bartlett	17	50	14	— 9	27.1	4.30
Waterbury	Tompkins	D. Trowbridge	17	54	14	3	28.1	.....
Nichols	Tioga	Rob't Howell	17	60	7, 14	9	31.8	.....
Newark Valley	....do	Rev. Sam'l Johnson	17	57	14	4	31.2	2.20
Himrods	Yates	G. D. Baker	17	53	14	4	28.7	3.19
Rochester	Monroe	H. W. Mathews	2	53	14	8	30.4	3.40
Do	....do	W. M. L. Fiske, M. D	17	51	14	7	29.4	3.32
Little Genesee	Allegany	Dan'l Edwards	17	52	9, 14	8	28.3	5.07
Suspension Bridge	Niagara	W. Martin Jones	17	52	14	7	28.3	.....
Buffalo	Erie	Wm. Ives	17	51	14	8	29.0	5.94
Averages							30.2	4.19
NEW JERSEY.								
Paterson	Passaic	Wm. Brooks	23	55	9	13	34.8	5.01
Newark	Essex	W. A. Whitehead	23, 26	57	9	16	36.1	4.73
New Brunswick	Middlesex	I. E. Hasbrouck	17	61	9	16	37.3	3.15
Trenton	Mercer	E. R. Cook	16	67	9	18	41.0	5.77
Rio Grande	Cape May	Mrs. J. R. Palmer	13	62	9	17	40.5	3.63
Moorestown	Burlington	Thos. J. Beans	17	67	9	15	38.3	3.12
New Germantown	Hunterton	A. B. Noll	2, 23	56	9	9	33.9	3.90
Lesser Cross Roads	Somerset	John Fleming	2, 17, 23	58	9	14	36.1	.....
Haddonfield	Camden	John Boadle	17	67	9	18	38.7	3.54
Newfield	Gloucester	E. D. Couch	17	68	9	12	40.3	.....
Greenwich	Cumberland	Miss R. C. Sheppard	13, 17, 23	62	9	17	40.7	2.15
Vineland	....do	John Ingram, M. D	17	63	9	12	40.1	3.35
Averages							38.2	3.84
PENNSYLVANIA.								
Nyces	Pike	John Grathwohl	23	60	9	5	29.8	4.24
Hamlinton	Wayne	Jas. D. Stocker	23	56	9	9	33.1	4.07
Dyberry	....do	Theodore Day	13, 17, 23	52	9	5	28.9	4.33
Fallsington	Bucks	Eben'r Hance	17, 23	61	9	17	37.0	3.80
Philadelphia	Philadelphia	Prof. J. A. Kirkpatrick	17	64	9	19	40.5	4.01
Germantown	....do	Thos. Meehan	17	65	9	16	33.7	.....
Do	....do	Ernest Turner	17	64	9	17	39.3	13.65?
Horsham	Montgomery	Miss Anna Spencer	23	63	9	16	37.4	3.81
Plymouth Meeting	....do	M. H. Corson	17	64	9	17	38.0	3.89
White Hall	Lehigh	Edw'd Kohler	2	55	9	10	34.7	.....
Factoryville	Wyoming	Rodman Sisson	17	56	9	6	31.2	2.88
Reading	Berks	J. Heyl Raser	17	63	9	17	39.4	3.97
West Chester	Chester	Geo. Martin, M. D	23	62	9	14	37.1	3.94
Parkersville	....do	F. Darlington, M. D	26	60	9	18	38.3	4.00
Ashland	Schuylkill	Rev. W. E. Honeyman	26	55	.....	.....	35.8	.....
Ephrata	Lancaster	W. H. Spera	23	64	9	14	41.7	3.30

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
PENNSYLV'A—Con.				°		°	°	*In.*
Harrisburg	Dauphin	Wm. H. Egle, M. D	23	62	9	16	38.4	9.10
Carlisle	Cumberland	Wm. H. Cook, M. D	17	60	9	17	36.3	5.40
Fountain Dale	Adams	S. C. Walker	23	64	9	13	36.1	4.19
Tioga	Tioga	E. T. Bentley	17	58	9	7	30.3	4.05
Williamsport	Lycoming	H. C. Moyer	17	55	8	16	35.7	.....
Lewisburg	Union	Prof. C. S. James	2	54	9	10	32.5	4.20
Grampian Hills	Clearfield	Elisha Fenton	17	48	9	1	27.2	5.16
Johnstown	Cambria	David Peelor	13	57	9	6	33.2	4.89
Franklin	Venango	Rev. M. A. Tolman	17	55	9	2	30.4	7.75
Connellsville	Fayette	John Taylor	22	60	9	5	34.7	.....
Brownsville	do	J. Allen Hubbs, M. D	15, 17, 22, 26	60	8	10	35.9	5.80
New Castle	Lawrence	E. M. McConnell	17	56	9	1	31.2	5.10
Beaver	Beaver	Rev. R. T. Taylor	17	56	9	9	36.1	5.80
Canonsburg	Washington	Rev. Wm. Smith, D. D.	22	62	9	5	34.8	4.62
Averages							35.0	5.03
DELAWARE.								
Milford	Kent	Mrs. W. R. Phillips	17	70	9	20	44.6	2.20
MARYLAND.								
Woodlawn	Cecil	Jas. O. McCormick	13	62	9	13	38.1	4.10
Annapolis	A. Arundel	Wm. R. Goodman	13	69	9	16	39.1	3.23
St. Inigoes	St. Mary's	Rev. J. Stephenson	17	70	9	18	43.2	2.45
Frederick	Frederick	J. K. Hanshew	23	58	9	18	40.1	3.36
Mt. St. Mary's	do	Prof. C. H. Jourdan	23	60	9	13	36.1	3.78
Averages							39.3	3.38
DIST. COLUMBIA.								
Washington	Washington	Smithsonian Instit'n	17	57	8	22	40.6	2.45
VIRGINIA.								
Johnsontown	Northampton	C. R. Moore	13, 17	66	9	23	45.7	2.60
Hampton	Elizab'th City.	Jas. M. Sherman	17	70	9	22	45.8	3.30
Zuni Station	Isle of Wight.	Rob't Binford	17	71	9	22	47.1	3.04
Bacon's Castle	Surry	B. W. Jones	17	80	9	24	48.2	6.88
Comorn	King George	E. Tayloe	17	72	9	16	42.5	1.71
Vienna	Fairfax	H. C. Williams	13	69	9	14	41.0	2.90
Fairfax C. H	do	Miss Lillie Thrift	17	70	8	13	38.2	3.70
Piedmont	Fauquier	Franklin Williams	23	67	9	13	37.5	2.95
Piedmont Station	do	Wm. A. Martin	23	70	9	10	36.1	3.30
Lexington	Rockbridge	W. H. Ruffner	23	74	9	13	43.0	4.65
Lynchburg	Bedford	Chas. I. Meriwether	17	66	9	18	44.8	.....
Snowville	Pulaski	J. W. Stalmaker	23	66	9	6	36.5	7.30
Wytheville	Wythe	Rev. Jas. A. Brown	23, 26	60	9	6	37.3	2.35
Averages							41.8	3.72
WEST VIRGINIA.								
Weston	Lewis	B. Owen	15, 22	60	9	6	36.5	.....
Cabell C. H	Cabell	C. L. Roffe	16	68	8	21	39.0	3.00
Averages							37.8	3.00

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
NORTH CAROLINA.								
				°		°	°	*In.*
Kenansville	Duplin	Rev. Jas. M. Sprunt	17	80	10	24	53.6	.....
Goldsboro'	Wayne	E. W. Adams, A. M	17	80	10	22	52.6	3.00
Oxford	Granville	W. R. Hicks, M. D	17	70	9, 10	22	46.7	3.50
Chapel Hill	Orange	David S. Patrick	22	71	3	28	51.7	.....
Albemarle	Stanley	F. J. Kron	17	74	5	12	43.9	4.51
Statesville	Iredell	Thomas A. Allison	13, 17	62	5, 9, 10	14	39.5	5.88
Asheville	Buncombe	E. J. Aston	23	65	9	12	41.7	3.50
Do	do	J. T. E. Hardy, M. D	23	66	9	10	41.5	.....
Averages							46.4	4.08
SOUTH CAROLINA.								
Anderson C. H	Anderson	E. J. Earle	15, 17	66	10	20	47.2	5.70
Gowdeysville	Union	Charles Petty	13	66	10	18	47.1	4.45
Bluffton	Beaufort	J. St. J. Guerard, M. D	18	78	5	32	56.1	3.70
Averages							50.1	4.62
GEORGIA.								
Berne	Camden	H. L. Hillyer	17	78	3	24	52.3	.....
Penfield	Greene	S. P. Sanford	13,14,17	67	9, 10	20	47.0	2.90
Atlanta	Fulton	F. Deckner and son	12,13,14, 15,16,17, 28	63	9, 10	15	45.1	5.31
Averages							48.1	4.11
ALABAMA.								
Rockville	Jefferson	Miss Ella B. Shields	16	72	9	33	54.0	4.13
Carlowville	Dallas	H. L. Allison, M. D	16	74	2, 9	28	50.3	5.05
Coatopa	Sumpter	S. K. Jennings, M. D.	16, 24	73	9	23	50.2	6.50
Fish River	Baldwin	W. J. Vankirk	15	72	4	30	.....	1.70
Mobile	Mobile	Lewes B. Taylor	15	68	5	27	52.7	3.51
Averages							51.8	4.18
FLORIDA.								
Jacksonville	Duval	A. S. Baldwin	17	82	10	32	59.3	1.05
Pilatka	Putnam	Gen. G. D. Robinson	15, 17	84	5	29	59.6	2.38
Averages							59.5	1.72
TEXAS.								
Houston	Harris	Miss E. H. Baxter	16	80	2	35	54.8	.....
Palestine	Anderson	N. S. Brooks	12, 22	76	17	24	51.1	1.70
Lavacca	Calhoun	L. D. Heaton	25, 26	76	3, 8	38	53.2	4.30
Clinton	De Witt	A. C. White, M. D	16	80	2	31	55.2	0.80
Austin	Travis	J. Van Nostrand	15	76	17	29	51.2	0.64
Lockhart	Caldwell	Lum Woodruff	22	76	2	30	52.1	.....
Averages							52.9	1.86
LOUSIANIA.								
New Orleans	Jefferson	Robt. W. Foster	22	76	2,5,9,10	34	55.0	4.75

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
MISSISSIPPI.				°		°	°	*In.*
Columbus	Lowndes	James S. Sull	16	73	9	23	46.4	7.73
Marion	Lauderdale	Thos. W. Florer	12, 30	78	2, 10	24	50.3	4.10
Grenada	Yalabusha	R. S. Ringgold	16	70	9	24	43.4	8.75
Near Brookhaven	Lawrence	Mrs. W. E. A. Keenan	16	75	5	26	51.0	9.40
Natchez	Adams	Wm. McCary	16	72	2	27	51.9	7.72
Averages							48.6	7.54
ARKANSAS.								
Helena	Phillips	O. F. Russell	16	72	9, 18, 19	26	45.0	.....
TENNESSEE.								
Elizabethton	Carter	Chas. H. Lewis	17	72	9	6	41.7	2.65
Tusculum College	Green	S. S. and W. S. Doak	24	63	8	19	42.3	2.10
Lookout Mountain	Hamilton	Rev. C. F. P. Bancroft	23	66	9	11	43.8	.....
Austin	Wilson	P. B. Calhoun	16	70	5, 9	12	40.9	8.60
Clarksville	Montgomery	Prof. Wm. M. Stuart	16, 26	63	9	15	39.8	8.39
Trenton	Gibson	W. T. Grigsby	16	67	9	19	43.7	5.58
Memphis	Shelby	Ed. Goldsmith	16	71	9	20	41.7	4.96
Averages							42.0	5.38
KENTUCKY.								
Pine Grove	Clarke	Sam'l D. Martin, M. D	22, 23 / 26, 30	56	9	—2	36.0	9.93
Danville	Boyle	O. Beatty	30	64	9	2	41.1	7.29
Shelby City	....do	Howard Shriver	26	60	9	0	37.7	8.28
Near Louisville	Jefferson	Mrs. L. Young	26	60	9	6	36.2	9.30
Averages							37.8	8.70
OHIO.								
Salem	Columbiana	J. E. Pollock	17	60	9	—2	32.2	6.05
Steubenville	Jefferson	Jos. B. Doyle	17	56	9	5	35.5	5.73
Painesville	Lake	E. J. Ferris	17	54	9	2	29.3	6.50
Milnersville	Guernsey	Rev. D. Thompson	17	60	8	10	31.0	3.30
Cleveland	Cuyahoga	Mr. & Mrs. G. A. Hyde	17	56	9	2	29.4	6.15
Gallipolis	Gallia	I. W. James	17	66	9	8	37.6	5.72
Kelley's Island	Erie	Geo. C. Huntington	22	46	9	4	29.3	4.95
Sandusky	....do	Thos. Neill	12	48	9	3	30.5	7.30
North Fairfield	Huron	O. Burrass	15	53	9	— 2	30.7	5.03
Gambier	Knox	Frank Compton	17	49	.....	.....	.....	.....
Westerville	Franklin	Prof. John Haywood	17	50	9	1	31.7	6.05
Williamsport	Pickaway	John R. Wilkinson	25	50	9	6	34.1	13.35?
North Bass Island	Ottawa	Geo. R. Morton, M. D	22	44	9	3	28.1	5.40
Marion	Marion	H. A. True, M. D	17, 22	49	9	— 5	28.9	7.28
Hillsboro'	Highland	J. McD. Mathews	16	54	9	0	32.1	6.25
Toledo	Lucas	J. B. Trembly, M. D	17	49	8	3	29.0	4.50
Bowling Green	Wood	John Clarke	12	51	9	0	30.5	6.65
Kenton	Hardin	C. H. Smith, M. D	15	51	9	4	33.8	8.88
Urbana University	Champaign	M. G. Williams	16	54	9	— 4	29.9	6.66
Bethel	Clermont	Geo. W. Crane	26	55	9	— 3	31.1	7.25
Jacksonburg	Butler	I. B. Owsley, M. D	15, 17	51	9	2	31.7	6.65

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date	Minimum temperature.	Mean temperature.	Rain and melted snow.
OHIO—Continued.								
				°		°	°	*In.*
Mt. Auburn Inst'e..	Hamilton		16	57	9	2	33.4	6.67
Cincinnati	....do	R. C. Phillips	26	60	9	7	35.4	6.10
College Hill	....do	John W. Hammitt	23	52	9	— 1	32.3	8.88
Averages							31.6	6.49
MICHIGAN.								
Monroe City	Monroe	Miss H. I. Whelpley	12	47	9	0	23.7	3.36
Adrian	Lenawee	J. W. Helme	22	42	9	— 4	24.7	5.86
Alpena	Alpena	J. W. Paxton	15, 17	36	13	4	23.7	2.52
State Agr'l College.	Ingham	Prof. R. C. Kedzie	17	46	9	2	25.4	1.93
Litchfield	Hillsdale	R. Bullard	17	44	9	— 4	24.3	3.18
Coldwater	Branch	N. L. Southworth	12	46	9	— 2	24.7	8.13
Grand Rapids	Kent	E. S. Holmes, D. D. S.	12,22,31	41	8, 9, 18, 19	7	25.0	.....
Northport	Leelenaw	Rev. Geo. N. Smith	17	40	18	4	22.2	.....
Benzonia	Benzie	Wm. Wilson	30	35	13, 14	3	22.3	.....
Homestead	....do	Geo. E. Steele	22	38	13, 14	— 2	21.0	.....
Pleasanton	Manistee	J. D. Millard	22, 28	38	13, 14	— 1	20.5	2.75
Muskegon	Muskegon	H. A. Pattison	22	42	18	8	27.7	.....
Otsego	Allegan	Milton Chase, M. D	12, 22	50	9	12	33.8	.....
Copper Falls	Keewenaw	S. H. Whittlesey, M. D	16	24	18	—13	11.2	8.95
Ontonagon	Ontonagon	Edwin Ellis, M. D	25	32	18	—14	16.2	.....
Averages							23.1	4.59
INDIANA.								
Aurora	Dearborn	Geo. Sutton, M. D	22	57	9	1	33.1	7.38
Vevay	Switzerland	Chas. G. Boerner	16	60	9	5	34.7	7.18
Mt. Carmel	Franklin	J. A. Applegate and daughter.	22	50	9	0	31.5	4.53
Muncie	Delaware	G. W. H. Kemper, M. D	22	53	9	— 1	29.5	4.00
Spiceland	Henry	Wm. Dawson	12, 16	51	9	— 3	29.7	5.03
Laconia	Harrison	Adam Crozier	16	62	9	3	35.4	6.89
Columbia City	Whitley	Drs. McCoy and Maxwell.	11	48	9	— 4	27.6	3.10
Knightstown	Rush	D. Deem	16	54	9	— 5	30.1	5.14
Near La Porte	La Porte	F. J. Andrew	10	48	9	— 4	25.2	4.20
Rensselaer	Jasper	J. H. Loughridge	11	47	8, 27	0	25.6	3.95
Lafayette	Tippecanoe	J. W. Newton	12	56	8, 9	4	29.9	4.70
Merom	Sullivan	Thomas Holmes	12	58	8	6	31.7	4.11
New Harmony	Posey	John Chappellsmith	12	58	8	13	35.3	4.35
Harveysburg	Fountain	B. C. Williams, M. D	22	58	9	— 2	26.1	4.60
Averages							30.4	4.94
ILLINOIS.								
Chicago	Cook	J. G. Langguth, jr	22	46	9, 18	4	27.1	2.37
Near Chicago	....do	Sam'l Brookes	16	48	8	2	25.6	.....
Evanston	....do	Prof. Oliver Marcy	22	42	8	— 1	25.0	3.25
Marengo	McHenry	J. W. James	16	45	8, 18	— 7	20.9	2.28
Mattoon	Coles	W. E. Henry	10	50	8	2	30.2	1.76
Effingham	Effingham	W. Thompson, M. D	12	62	8	6	30.7	5.75

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
ILLINOIS—Contin'd.				°		°	°	*In.*
Aurora	Kane	A. Spaulding, M. D	11	45	8	— 2	22.3	5.48
Louisville	Clay	D. H. Chase, M. D	12	62	9	10	33.0	4.90
Golconda	Pope	Wm. V. Eldridge	15	68	7, 9	16	39.2	4.50
Belvidere	Boone	G. B. Moss	16	43	18	— 7	20.9	1.72
Sandwich	De Kalb	N. E. Ballou, M. D	16	46	18	— 3	23.4	4.45
Ottawa	La Salle	Mrs. E. H. Merwin	16	54	8	0	27.9	5.29
Decatur	Macon	Timothy Dudley	12, 16	56	8	3	27.6	2.85
Winnebago	Winnebago	J. W. and Miss Tolman	16	42	8, 18	— 8	20.4	2.87
Rochelle	Ogle	Dan'l Carey	16	44	18	— 4	24.1	.....
Wyanet	Bureau	E. S. and Miss I. G. Phelps.	16	50	18	— 3	25.5	3.30
Tiskilwa	....do	Verry Aldrich	11, 16	48	18	0	25.8	.....
Hennepin	Putnam	Smiley Shepherd	11	48	18	— 2	26.0	.....
Do	....do	Ethan Osborn	11, 12	46	18	1	26.7	1.65
Peoria	Peoria	Fred'k Brendel	16	52	8	4	28.0	2.05
Springfield	Sangamon	G. M. Brinkerhoff	11	56	8	2	27.6	.....
Dubois	Washington	Wm. C. Spencer	12	64	18	4	32.9	3.64
South Pass	Union	H. C. Freeman	12	64	8, 9, 18	12	34.7	.....
Galesburg	Knox	Prof. Wm. Livingston	11	50	8, 18	— 2	21.4	0.63
Manchester	Scott	Dr. J. and C. W. Grant	22	56	8	0	29.5	1.16
Mt. Sterling	Brown	Rev. A. Duncan	11	54	8	— 2	26.4	.....
Andalusia	Rock Island	E. H. Bowman, M. D.	16	50	8, 18	0	26.0	.....
Augusta	Hancock	S. B. Mead, M. D	5, 11	51	18	— 2	26.9	2.12
Warsaw	....do	B. Whitaker	11	54	8	— 2	27.3	2.20
Averages							27.0	4.59
WISCONSIN.								
Plymouth	Sheboygan	G. Moeller	22	40	18	—11	19.0	2.10
Hingham	.....do	John De Lyser	22	40	18	—10	19.7	.....
Milwaukee	Milwaukee	I. A. Lapham, L.L.D.	17	46	18	— 5	22.7	2.37
Appleton	Outagamie	J. C. Foye	16	42	18	— 2	22.0	.....
Geneva	Walworth	W. H. Whiting	22	41	8, 18	— 6	22.0	2.10
Waupacca	Waupacca	H. C. Mead	28	40	18	—14	18.9	.....
Embarrass	....do	E. Everett Breed	16, 28	35	9, 18	— 6	16.1	.....
Rocky Run	Columbia	W. W. Curtis	16	41	18	—10	19.2	2.00
Madison	Dane	W. W. Daniels	16	40	18	—12	17.8	3.25
Edgerton	Rock	H. J. Shints	16	42	8	— 6	22.2	2.65
Mosinee	Marathon	Jno. O'Donoghue	16	36	18	—25	11.9	2.31
Baraboo	Sauk	M. C. Waite	25	36	18	—12	18.7	6.88
New Lisbon	Juneau	J. L. Dungan	24	46	18	—18	17.2	.....
Bayfield	Bayfield	Andrew Tate	3, 29, 30	28	18, 23	—18	9.6	.....
Averages							18.4	2.96
MINNESOTA.								
Afton	Washington	Dr. B. F. & Mrs. Babcock	28	36	21	—21	10.9	2.45
St. Paul	Ramsey	Rev. A. B. Paterson	5, 28	33	18	—20	14.8	1.34
Minneapolis	Hennepin	Wm. Cheney	28	32	18	—30	9.9	2.15
Sibley	Sibley	C. W. & C. E. Woodbury	28	36	23	—20	9.3	1.53
Koniska	McLeod	Thomas M. Young	28	32	17, 23	—24	10.7	2.05

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
MINNESOTA—Con'd.				°		°	°	*In.*
New Ulm	Brown	Charles Roos	5, 28	32	17	—18	11.0	1.74
Madelia	Watonwan	W. W. Murphy	5	32	23	—23	9.7	2.05
Averages							10.9	1.90
IOWA.								
Clinton	Clinton	Dr. J. P. Farnsworth	11	44	18	— 5	22.1	4.50
Waukon	Allamakee	E. M. Hancock	16	40	17	—15	14.4	.....
Dubuque	Dubuque	Asa Horr, M. D	16	43	17	— 6	21.2	2.22
Monticello	Jones	M. M. Moulton	16	40	8, 17	—10	18.8	1.35
Bowen's Prairie	....do	Sam'l Woodworth	11	54	8, 17	—12	19.9	4.10
Ft. Madison	Lee	Dan'l McCready	11	48	18	— 2	25.6	2.89
Guttenberg	Clayton	Jas. P. Dickerson	16	42	8	—12	17.3	.....
Mt. Vernon	Linn	Prof. A. Collins	16	40	17	— 6	21.1	.....
Iowa City	Johnson	Prof. Theo. S. Parvin	16	44	8	— 5	22.1	2.30
Independence	Buchanan	Geo. Warne, M. D	16	40	8, 17	—11	18.1	1.73
Near Independence	....do	Mrs. D. B. Wheaton	16	43	8, 17	—12	17.3	4.57
Waterloo	Black Hawk	T. Steed	11, 16	38	17	—10	21.0	.....
Rockford	Floyd	H. Wadey	16	39	17,18,23	— 7	18.9	.....
Iowa Falls	Hardin	N. Townsend	11,15,27, 28, 29	38	16	— 8	20.9	1.18
Algona	Kossuth	James H. Warren	11, 28	33	17	—13	15.8	1.80
West Bend	Palo Alto	Ph. Dorweiler	11	36	17	—18	12.6	2.10
Boonesboro'	Boone	E. Babcock	11	48	8, 17	—10	18.7	6.50
Mineral Ridge	....do	Z. S. Sullivan	11	50	8, 17	— 8	20.5	0.73
Fontanelle	Adair	A. F. Bryant	10	45	17	—13	21.4	0.68
Rolfe	Pocahontas	Oscar I. Strong	11	40	17	—17	16.5	1.38
Grant City	Sac	Mr. and Mrs. Miller	28	42	8, 9, 17	—12	17.5	1.10
Logan	Harrison	Jacob T. Stern	10	49	17	—11	19.5	0.90
Woodbine	....do	David R. Witter	10	42	17	—18	18.8	0.29
West Union	Fayette	Frank McClintock	10, 30	46	17	—19	17.9	1.72
Averages							25.4	2.21
MISSOURI.								
St. Louis University	St. Louis	Rev. F. H. Stuntebeck	12	63	8	8	34.7	2.25
Allenton	....do	A. Fendler, M. D	12	64	8	6	32.8	2.31
Hematite	Jefferson	Jno. M. Smith	12	69	8	8	35.8	2.60
Rolla	Phelps	Homer Ruggles	16	64	17	8	34.5	1.18
Jefferson City	Cole	Nicolas de Wyl	16	61	17	2	28.0	.....
Bolivar	Polk	James A. Race	11,22,29	58	17	4	35.5	0.31
Harrisonville	Cass	John Christian	11	54	17	— 2	30.2	0.50
St. Joseph	Buchanan	Rev. H. Bullard	11	56	7, 16, 17, 18	4	29.2	.....
Oregon	Holt	Wm. Kaucher	10	55	17	— 8	26.2	1.00
Averages							31.9	1.45
KANSAS.								
Atchison	Atchison	Dr. H.B. & Miss Horn	11	58	8	— 3	27.3	0.50
Leavenworth	Leavenworth	Dr. J. Stayman	29	56	8	— 2	26.3	0.62
Olathe	Johnson	Watts Beckwith	11	56	17	— 1	28.7	0.70
Paola	Miami	L. D. Walrad	11	57	17	1	30.2	0.50
Baxter Springs	Cherokee	Ingraham and Hyland	16	68	17	6	35.6	0.79

Table showing the highest and the lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
KANSAS—Contin'd.				°		°	°	*In.*
Lawrence	Douglas	Prof. F. H. Snow	11, 29	57	8	0	29. 4	0. 67
Holton	Jackson	James Watters, M. D	11	60	8, 17	— 4	27. 2	0. 75
Neosho Falls	Woodson	Mrs. E. W. Groesbeck	25	57	17	— 1	27. 3	0. 30
Le Roy	Coffey	J. G. Shoemaker	29	58	17	0	32. 2	0. 25
State Agr. College	Riley	Prof. B. F. Mudge	11, 29	58	17	— 3	27. 7	0. 05
Council Grove	Morris	A. Woodworth, M. D	11	62	17	2	30. 5	0. 50
Averages							29. 3	0. 50
NEBRASKA.								
Omaha Agency	Omaha Reserve	Rev. Wm. Hamilton	29	46	17	—10	21. 8	0. 25
Blair	Washington	John S. Bowen	10	43	8	— 9	20. 0	.....
De Soto	....do	Charles Seltz	10	43	17	—14	19. 5	0. 35
Bellevue	Sarpy	Mrs. E. E. Caldwell	10	49	17	— 8	24. 1	0. 40
Nebraska City	Otoe	J. M. Pittenger	10	54	17	—12	23. 5	1. 74
Averages							21. 8	0. 69
UTAH TERRITORY.								
Great Salt Lake City	Great Salt Lake	W. W. Phelps	29, 30	48	17	11	31. 7	.....
CALIFORNIA.								
Monterey	Monterey	C. A. Canfield, M. D	31	73	2, 8	35	51. 0	1. 13
Chico	Butte	W. F. Cheney, M. D	30	70	5	26	49. 4	2. 70
Watsonville	Santa Cruz	A. J. Compton	29, 30	78	16, 17	34	53. 8	3. 00
Vacaville	Solano	Prof. J. C. Simmons	29	68	2	26	46. 2	2. 92
Cahto	Mendocino	A. W. Thornton, M. D.	28, 31	68	5, 6, 9	33	48. 0	15. 00
Averages							49. 7	4. 75
MONTANA TERRITORY								
Deer Lodge City	Deer Lodge	Granville Stuart	31	51	18	—36	22. 0	0. 64
WASHINGTON TERRITORY.								
Port Angelos	Clallam	Alex. Sampson	12	52	20	38	46. 3	11. 75
Walla-Walla	Walla-Walla	A. H. Simmons	30	64	18	2	35. 6	4. 41
Averages							41. 0	8. 08
COLORADO TERRITORY.								
Denver	Arapahoe	Wm. H. Byers	31	60	16	— 5	29. 4	1. 15

STATE AVERAGES FOR JANUARY.

The following table may interest many who have not leisure to examine in detail the foregoing. It exhibits the highest and lowest temperature (with dates prefixed) in each State during January, 1870, with the average temperature and rain-fall (including melted snow) of the same during the same month. The coldest day in some States was the warmest in others, and vice versa.

State.	Date.	Highest temperature.	Date.	Lowest temperature.	Average mean temperature.	Aver'ge rain-fall.
		°		°	°	*In.*
Maine	20	56	14	—22	24.2	6.51
New Hampshire	27	55	14	—12	24.4	4.40
Vermont	17	52	14	—30	24.1	4.48
Massachusetts	23	65	8	— 8	31.9	6.66
Connecticut	2, 27, 28	58	9	— 7	32.7	6.94
New York	17	68	17	—14	30.2	4.19
New Jersey	17	68	9	9	38.2	3.84
Pennsylvania	17	65	9	1	35.0	5.03
Maryland	17	70	9	13	39.3	3.38
Virginia	17	80	9	6	41.8	3.72
West Virginia	16	68	9	6	37.8	3.00
North Carolina	17	80	9	10	46.4	4.08
South Carolina	18	78	10	18	50.1	4.62
Georgia	17	78	9, 10	15	48.1	4.11
Alabama	16	74	9	23	51.8	4.18
Florida	15, 17	84	5	29	59.5	1.72
Texas	16	80	17	24	52.9	1.86
Mississippi	12, 30	78	9	23	48.6	7.54
Tennessee	17	72	9	6	42.0	5.38
Kentucky	30	64	9	— 2	37.8	8.70
Ohio	17	66	9	— 5	31.6	6.94
Michigan	12, 22	50	18	—14	23.1	4.59
Indiana	16	62	9	— 5	30.4	4.94
Illinois	15	68	8, 18	— 8	27.0	4.59
Wisconsin	17, 24	46	18	—25	18.4	2.96
Minnesota	28	36	18	—30	10.9	1.90
Iowa	11	54	17	—19	25.4	2.21
Missouri	12	69	17	— 8	31.9	1.45
Kansas	16	68	8, 17	— 4	29.3	0.50
Nebraska	10	54	17	—14	21.8	0.69
California	29, 30	78	2, 5	26	49.7	4.75
District of Columbia	17	57	8	22	40.6	2.45

NOTES OF THE WEATHER—JANUARY, 1870.

We omit many notices of the great gale of January 2, which extended all over the New England and middle States, into some southern States, east of the Alleghany range, and westward along the lakes into Michigan. So of the great storm of wind, rain, and snow, and electricity, of the 16th and 17th, with its great and sudden fall in temperature, extending over the northwestern, western and most southwestern States, and even into Virginia and the Carolinas. We also omit descriptions of the bright and singular lunar halos and parhelia ("sun dogs") which preceded, accompanied, or followed this storm in nearly all its course. Our limits forbid more than we have given. They are preserved for future use in the Smithsonian Institution.

Houlton, Me.—Sleighing good since December 23d, but icy till 25th; more rain than for many Januarys.

Steuben, Me.—Tornado 3d; snow gone 16th; rivers and bays clear of ice 31st.

Orono, Me.—Auroras, 3d brilliant red; 28th, 30th.

Williamsburg, Me.—Auroras, 3d bright; 30th. Snow fall 34.75 inches.

West Waterville, Me.—Auroras a. m. of 4th, brilliant; 26th, 30th. Month mild, wet, 7.44° warmer than in six years.

Gardiner, Me.—Snow, rain, hail, gale, in succession, 2d; auroras, a. m. of 3d and p. m. of 26th; splendid 4th, 5th, 27th, 28th, 30th; river closed 8th; except 24th, good sleighing 10th to 26th January; average heat for 34 years 18.21°; this month 6.87° warmer.

Lisbon, Me.—No sleighing till 25th, and poor for lumbering.

Norway, Me.—Snow, rain, and high wind 2d; freshet 3d; auroras a. m. of 3d; bright p. m. of 3d, 26th, 30th; first good sleighing 13th. Warm open January; snows mostly ended in rain, andfroze, probably injuring grass roots.

Cornishville, Me.—Very splendid aurora all night 8th. Average January heat for 41 years 17°; this, 25.76°.

Stratford, N. H.—Warmest January in twelve years; snow-fall 36.5 inches; now 2 feet deep in woods.

Whitefield, N. H.—Snow, rain, with high wind 2d; auroras a. m. of 3d; splendid 30th.

Goffstown Center, N. H.—Auroras 1st, 2d, 26th, 28th. A warm, wet January; frost out of ground 31st.

Graftsbury, Vt.—Auroras 9th, 26th, 27th, 30th. A warm January; snows ended in rain.

Newport, Vt.—Gale night of 2d; robins seen feeding on mountain ash berries 13th; aurora 30th.

East Bethel, Vt.—Warmest January in many years; 2.5 feet of snow, and much rain.

Woodstock, Vt.—Good sleighing all January, sometimes icy, as snows often ended in hail and rain.

West Charlotte, Vt.—Damaging gale from south last night, 3d; dreadful storm 13th; first snow to cover the ground in 1870, 25th; aurora 30th.

Middlebury, Vt.—Warmest January in sixteen years; little sleighing and no ice for storing away.

Panton, Vt.—Damaging gale 2d and 3d; aurora 3d; violet in garden 4th; snow with high wind 13th; thunder-storm 17th.

Castleton, Vt.—High winds 1st and 2d; aurora and meteors 27th.

Kingston, Mass.—Splendid red aurora a. m. of 5th; no frost in ground all the month; farmers plowing.

Topsfield, Mass.—Auroras a. m. of 3d, brilliant red 8th; damp snow damaged trees 30th. Month often like April; plowing; ice only 6 inches thick; at close 9 inches; snow on ground.

Georgetown, Mass.—Auroras 2d, 3d, and 26th; 10 inches damp snow 30th. Brooks open all the month; crocus bloomed in sunny spots.

Milton, Mass.—Auroras 3d, 25th, 30th; thunder and lightning 10th.

Billerica, Mass.—Great rain-storm 2d; sparrows 24th; 12 inches snow 31st.

West Newton, Mass.—Very bright aurora 3d, light-red streamers, very dark-red flashes; northern heavens as if bathed in blood from midnight till dawn; dandelions and pansies blooming 27th.

New Bedford, Mass.—Very little snow or ice; none at close of month.

Worcester, Mass.—Heavy rain, southeast gale 2d; auroras a. m. of 3d, brilliant p. m. of 3d, 26th; willow bush blossoms 28th.

Mendon, Mass.—Auroras 4th, 5th; ground free of frost and some ponds of ice 28th.

Lunenburg, Mass.—Severe gale northwest, then southeast, ending southwest 2d and 3d; damp and drifting snow 29th. Mildest January since 1851.

Amherst, Mass.—Severe northeast snow-storm 2d; snow cylinders rolled by the wind 30th; sleighing 30th, 31st.

Middletown, Ct.—Auroras 3d, 28th; robins and blue-jays 23d. River free of ice all month.

Moriches, N. Y.—Gale from south 2d; auroras all night 2d and 3d, faint 26th. Ice but once and soon gone.

South Hartford, N. Y.—Frequent strong hot wind 17th; auroral band from northeast to southeast 18th.

Garrison's, N. Y.—High wind 2d; auroral display 29th. Very mild month, no frost in the ground.

New York City.—Auroras 1st, 3d. Snows all light and slight.

Newburg, N. Y.—Month remarkably mild, probably because solar spots are near their minimum.

Cooperstown, N. Y.—Otsego Lake closed 8th. Little snow, much rain.

Sloansville, N. Y.—Bright aurora 16th. Wheeling all winter.

North Hammond, N. Y.—Rain 2d; violent gale and snow 3d; thermometer rose from —14° to 40° (60 degrees) in 20 hours 14th, 15th. St. Lawrence River open in many places, ice poor.

Houseville, N. Y.—Snow, gale, 2d, 3d; cold snow-storm 13th; gale, rain, night of 15th.

Leyden, N. Y.—A north wind marked —14° here, but before it reached New York (where the mercury stood at 16°) the south wind drove it back and raised our temperature to 55° in 48 hours. An open sunny month; sleighing all the time; no drifts; much ice on fields and roads.

South Trenton, N. Y.—Not an unpleasant day in the month, only once below zero; no snow at close.

Depauville, N. Y.—Snow, gale from south 3d; but few days' sleighing; ten rainy days; mean temperature 5.9° above January average for six years.

Palermo, N. Y.—Distant thunder 17th. Except 1863, warmest January in seventeen years.

Nichols, N. Y.—Hard rain and southeast wind 1st, 2d. Ground bare nearly all month.

Newark Valley, N. Y.—Month mild, still, cloudy; little rain or snow.

Himrods, N. Y.—Robins 24th, 25th, 28th; aurora 28th.

Suspension Bridge, N. Y.—Sleighing 1st to 12th, 13th to 15th, and 25th to close.

Buffalo, N. Y.—Rain, furious southwest gale, two inches snow 1st, 2d, 3d; first ice on lake 8th. Month began without ice or frozen ground, and was stormy till 17th; sleighing on thirteen days.

Newark, N. J.—But one January (1858) in twenty-six years as warm; average heat 28.895°; this is nearly 7.2° above that. The gale on 2d from southeast, south, southwest did much damage. Snows light, rains copious and much above the average.

Rio Grande, N. J.—Red aurora 3d; spring morning, birds singing, 26th.

Moorestown, N. J.—After 12th ground open; frogs 17th; dandelions 25th. Warmest January known here.

New Germantown, N. J.—Auroras 2d and 3d, 26th. Ground not frozen deeper than an inch all month.

Haddonfield, N. J.—Brilliant aurora 3d; dandelions 16th; violets 23d; yellow jasmine 26th.

Newfield, N. J.—Aurora 3d; ground frozen 4 inches 6th.

Greenwich, N. J.—Aurora 3d; dandelions 4th; chickweed 20th; frogs heard 27th.

Nyces, Pa.—Robins and crows 27th. Very mild January.

Hamlinton, Pa.—Auroral lights 3d, 28th; muddy roads 8th to 28th.

Dyberry, Pa.—Aurora partly red 28th. Month 10° above average of five years.

Fallsington, Pa.—Rain, gale, 2d; auroras, 3d splendid; 26th. Ice out of Delaware; farmers plowing.

Philadelphia, Pa.—Mean temperature of January, 1858, (the warmest in eighteen years,) 40.81°; 1870, 40.49°; 8.75° above the January average of nineteen years.

Germantown, Pa.—Auroras 3d to 6th, and 9th; spirea in leaf, and dandelion and jasmine in flower 27th. Not one entirely clear day.

Horsham, Pa.—Snow-drops 26th. Little snow or freezing; some plowing; grain looks well.

Plymouth Meeting, Pa.—Violent wind 2d; magnificent crimson aurora 3d, faint 4th; no frozen ground after 14th.

Factoryville, Pa.—Auroras, red tinge 3d, white 26th. Little snow; mud plenty; streams open; making maple sugar.

Parkersville, Pa.—Rain, then gale, 2d; auroras, yellow, red patches, a. m. of 3d; faint p. m. of 3d.

Harrisburg, Pa.—Rain 17th, (4 of the 6 inches fell in 2 hours.) Sweet-scented honeysuckle made 2 inches growth this month.

Carlisle, Pa.—Farmers plowing from 21st to 31st.

Tioga, Pa.—Month like April; river open all month; plowing.

Williamsport, Pa.—Plowing 1st; crows 2d; wrens 21st; beautiful aurora 26th; snow 31st.

Grampian Hills, Pa.—Snow, gale 2d; thaw nearly every day 12th to 31st; ground bare 18th to 30th; snow 31st.

Franklin, Pa.—Snow, gale 2d; ground free of frost 13th. Rain on 13, snow on 11 days.

Connellsville, Pa.—Heavy rain, lightning, and thunder 17th.

Brownsville, Pa.—Tornado with lightning and thunder 17th.

Canonsburg, Pa.—Snow squalls 1st, 2d, 4th, 25th; thunder and lightning 25th.

Milford, Del.—Ice 3d, 9th, 18th; auroras 3d, 26th.

Woodlawn, Md.—Auroras a. m. of 3d; brilliant, 8th; distant thunder and lightning west 17th.

St. Inigoes, Md.—Thunder all p. m., vivid lightning 15th.

Frederick, Md.—Gale 2d; aurora a. m. 3d; hail and rain 29th.

Mt. St. Mary's, Md.—Heavy gale 2d; beautiful aurora a. m. 3d; thunder 17th.

Johnsontown, Va.—Rain and strong wind 2d; thunder shower 15th; toad 22d; peach blossoms 31st.

Hampton, Va.—Thunder-storm 15th; Babylonian willow in full leaf 31st. Not a flake of snow this month.

Zuni Station, Va.—Maple (*acer rubrum*) in bloom 26th; brilliant aurora 30th. Grass green; is this winter?

Bacon's Castle, Va.—Hard wind and rain 2d; brilliant aurora 3d; robins in gangs 9th; thunder showers 15th, 17th; daisy 21st; alder 24th. Means, January, 1868, 35.9°; 1869, 46.4°; 1870, 48.2°.

Comorn, Va.—Auroras 26th, 31st. Ice on six mornings; plowing every week; dry till 24th; last week wet.

Fairfax C. H., Va.—Lightning and thunder-storm, strong wind from southwest 17th; aurora 28th.

Vienna, Va.—Gale with rain, hail, lightning, and thunder 17th; fan-shaped aurora in northeast 18th.

Piedmont, Va.—Slight rain and snow with high wind 31st.

Piedmont Station, Va.—Blood-red sky north and northeast, then formed a perpendicular column 3d; birds singing 12th, (the wren has remained here;) blue birds 16th; plowing 22d.

Lexington, Va.—Ice three inches 10th; great thunder-storm 17th.

Lynchburg, Va.—Aurora 3d; ice three inches 10th; planted potatoes, peas (sowed 14th) coming up 24th.

Snowville, Va.—Heavy storm 1st; thunder-storm 17th.

Wytheville, Va.—Terrible snow-storm all day and night 2d, (drifts seen 31st;) thunder storm 17th.

Cabell C. H., Va.—Heavy rain, high wind, loud thunder 17th.

Albemarle, N. C.—Rain and gale all day and night 2d; most magnificent aurora ever seen here, white and rosy, a. m. of 3d; thunder-storm 15th; thunder and gale 31st.

Anderson C. H., S. C.—Snow-storm 3d; furious wind and rain 17th; alder blossoms 18th. Month wet.

Gowdeysville, S. C.—Warm and pleasant 12th to 31st; clover and wheat growing finely.

Bluffton, S. C.—First snow to whiten ground in many years.

Atlanta, Ga.—Thunder and lightning S. E. 15th; thunder N. W. 24th.

Penfield, Ga.—At midnight 5th a loud roaring noise for fifteen seconds, jarred buildings, felt at points twenty miles S. W., thirty miles N. E., seventy miles S. E., and at Macon sky illuminated as by fire in N. E. The first, was it an explosion of a meteor?—the second, an aurora?

Carlowville, Ala.—Heavy thunder-storm 15th.

Pilatka, Fla.—Windy 1st, 2d; gale 3d; frosts 3d, 4th, 5th, with ice 6th; then warm to 31st. Orange, peach, and plum in blossom.

Houston, Texas.—Frost, ice 2d, 3d; auroras 3d, 26th, 27th, 28th.

Lavacca, Texas.—Cold and clear 1st to 5th; heavy thunder-storm p. m. of 13th to a. m. of 14th, incessant lightning all night, melted telegraph conductors.

New Orleans, La.—Strawberries blossom 12th to 21st; summer days 24th to 31st, but nights cool.

Columbus, Miss.—Thunder-storm, high wind day and night 16th.

Marion, Miss.—Snow-storm 1st; hyacinths 11th; larks, blue birds, frogs, 13th; peach and plum blossoms 27th.

Natchez, Miss.—Heavy thunder-storms 19th, 24th. No clear days.

Elizabethton, Tenn.—First thunder-storm of 1870, 17th; robins 20th. Much plowing this month.

Austin, Tenn.—Heavy thunder-storm all night 17th; then delightful weather to 31st.

Clarksville, Tenn.—Rain and 2.75 inches snow 1st, 2d, 3d; daily rain 11th to 17th, when heavy rain, hail, and violent wind.

Trenton, Tenn.—Warm, open winter; earth very wet.

Shelby City, Ky.—Rain, then five inches snow, 1st, 2d; skating 7th; ice three to four inches 10th; heavy thunder-storm 16th; great rain and damaging gale 17th.

Pine Grove, Ky.—Rain, then eight inches snow 1st, 2d; snow all day 3d, 4th; terrific wind, rain, hail 17th. Rain and snow on eighteen days—snow-fall, fifteen inches.

Salem, Ohio.—Rain and snow on eighteen days; ground bare of snow most of January.

Steubenville, Ohio.—Snow and heavy wind 2d; thunder-storm 17th.

North Fairfield, Ohio.—Snow 1st, with strong wind 2d, eight inches deep by 3d; thunder showers 17th.

Westerville, Ohio.—Snow, then rain 1st, then severe snow-storm 2d.

North Bass Island, Ohio.—Heavy snow drifts 2d; sleet 12th; snow-fall fourteen inches, on eight days; rain on eight days.

Hillsboro, Ohio.—Rain, snow 1st; snow 2d; thunder, rain, hail 16th, 17th; two inches snow 31st.

Toledo, Ohio.—Severe snow-storm 1st, 2d; sleighing till 11th; lightning, thunder, rain 17th. Stormy month; 15.75 inches snow on eleven days; only four clear days.

Bowling Green, Ohio.—Rain 11th to 13th; then snow, sleet, and wind till 17th, when wind became a cold gale, and changed the country to fields of ice.

Urbana, Ohio.—Snow gone after ten days 13th; great storm of thunder, hail, wind 17th.

Jacksonburg, Ohio.—Bright aurora 3d; violent wind and thunder 17th; hail, rain, sleet 24th; heavy sleet 25th.

Cincinnati, Ohio.—Thunder shower 16th; thunder, wind, rain, hail, thirty minutes, overflowing sewers, &c., 17th.

College Hill, Ohio.—Magnificent aurora, red streamers, 3d; great thunder-storm all night of 16th, and sleet storm all p. m. of 17th.

Adrian, Mich.—Rain, hail 14th, (a tornado six miles south.)

Alpena, Mich.—Snow, gale 2d; beautiful auroras 8th, 26th, 30th; thunder, rain, wind 17th. Three jays and a blackbird wintering on the island.

Litchfield, Mich.—Month mild, but 4.27° colder than in 1869; little sleighing, good wheeling, grain promising.

Grand Rapids, Mich.—Fourth sleighing 8th to 17th; heavy thunder and lightning 17th.

Northport, Mich.—A long winter, pleasant month, good sleighing, no ice in the bay.

Homestead, Mich.—High northwest wind and rain last night, blustering to-day, 17th; storm continues 18th.

Muskegon, Mich.—Great thunder-storm and gale northwest to northeast 17th; very bright aurora 27th.

Copper Falls, Mich.—Month of high winds, sudden changes, and snow-fall 5 feet 9½ inches.

Aurora, Ind.—Auroras 3d, 8th; an August storm of thunder, lightning, hail, rain 17th; crows 22d; robins 23d.

Vevay, Ind.—Crimson aurora 3d; thunder-storm, hail, gale 16th; woodpecker, blue-birds 28th.

Muncie, Ind.—Thunder-storm from southwest 17th.

Spiceland, Ind.—Snow all day 1st; nearly all day 2d; most of day 3d; very rainy 16th, 17th; cold-storm p. m. 17th.

Laconia, Ind.—Bright aurora 3d; thunder and lightning 16th; and rain, gale 17th.

Columbia City, Ind.—Thunder-storm 16th; heavy 17th.

Knightstown, Ind.—Heavy thunder-storm 16th; gale 17th.

La Porte, Ind.—Gale, thunder, lightning, rain 17th.

Merom, Ind.—Hail with lightning and thunder 17th.

New Harmony, Ind.—Violent gale 16th and 17th.

Chicago, Ill.—Little sunshine, rain on four and snow on seven days.

Mattoon, Ill.—Rain, snow, forked lightning, thunder night of 16th.

Effingham, Ill.—Rain, warm wind from south 16th; hail, thunder, sharp wind from west 17th. Winter wheat hurt by thaws and freezes; peach buds sound.

Aurora, Ill.—Except storm of 16th, and following cold, month mild; ground mostly bare.

Louisville, Ill.—Thunder-storm night of 16th; robins, jays, &c., 23d; wild geese fly north 27th. Wheat looks well.

Golconda, Ill.—First ice in Ohio river 11th to 14th; heavy thunder, lightning and deluge of rain 17th.

Belvidere, Ill.—Auroras 3d, 24th, 25th, 26th; lightning, thunder, some hail night of 16th; mercury fell 41° in ten hours. Good wheeling.

Ottawa, Ill.—Very heavy thunder-storm night of 16th.

Decatur, Ill.—Night of 16th, terrible thunder, lightning and wind; two storms from southwest and northwest met; the southwest barely touched here, but did great injury south of us.

Winnebago, Ill.—Rain, sleet, snow 12th, 13th; thunder-storm and gale 16th, and by 17th mercury fell 44° in nine hours; auroras 26th, 30th.

Wyanet, Ill.—Month cloudy, no heavy storms, 6° colder than in 1869, 10° warmer than in 1868, and 8° warmer than in 1867.

Peoria, Ill.—Thunder-storm, gale 16th; thermometer fell 45° in ten hours.

Dubois, Ill.—Frogs 15th, 16th; terrific thunder-storm, hail, gale, night of 16th; buzzards 27th.

South Pass, Ill.—Distant thunder 12th; freezing rain 14th; terrific thunder-storm 16th; light snow 17th.

Galesburg, Ill.—Heavy thunder-storm without high winds 17th.

Manchester, Ill.—Bright aurora 6th; violent gale and thunder-storm 16th.

Mount Sterling, Ill.—Severe thunder-storm 13th; distant lightning in south 17th.

Andalusia, Ill.—Mississippi River closed 8th; opened 10th; closed 17th; teams crossed 18th; auroral arch 27th.

Augusta, Ill.—Severe thunder, lightning, and brief rain 16th.

Plymouth, Wis.—Faint auroras 26th, 30th, 31st.

Milwaukee, Wis.—Auroras 2d, 4th, 26th, 30th; heavy rain, lightning, night of 16th.

Embarrass, Wis.—Auroras 8th, 26th; perfect arch 30th, 31st.

Rocky Run, Wis.—Auroras 3d, 26th, 27th, 30th. Much southerly wind this month.

Madison, Wis.—Lightning, rain 16th; violent southwest wind till 17th; mercury fell till a. m. 18th; an aurora 29th.

Mosinee, Wis.—Strong gale 2 a. m. 17th; auroras 28th, 29th.

Baraboo, Wis.—Mild month; mildest winter known here.

Bayfield, Wis.—Very heavy snow-storm 17th; auroras 26th, 27th, 28th. More snow this month than usual.

Minneapolis, Minn.—Drifting east snow-storm 16th, 17th.

Koniska, Minn.—River ice two feet thick 15th; worst day in my fourteen years' residence here 17th.

New Ulm, Minn.—Severe snow-storm all day 17th; snow on ground two feet 31st.

Madelia, Minn.—Great drifting snow-storm from northwest 17th.

Clinton, Iowa.—Thunder and lightning in southeast 16th; wind changed to northwest and became a cold gale 17th.

Waukon, Iowa.—Auroras 1st, 3d; brilliant 26th; air-frost all day and mercury falling 17th.

Dubuque, Iowa.—Wind blew hard all day 16th; barometer fell rapidly till on 17th.

Fort Madison, Iowa.—Gale 17th; Mississippi river frozen over 8th; distant thunder and lightning 16th; gale after midnight 17th.

Guttenberg, Iowa.—At 6.30 p. m. 16th, thermometer 45°; at 7 a. m. 17th 6°; range 51° in eight hours thirty minutes.

Independence, Iowa.—Terrific gale from west 7th; rain all day 16th; air full of frost 17th.

Waterloo, Iowa.—Mildest winter in many years.

Rockford, Iowa.—Snow and worst blow this winter 7th, 8th; very cold and severe gale 17th.

Algona, Iowa.—Snow 14th, 15th; then sleet with strong southeast wind till one p. m. 16th; then changed to northwest gale till sunset 17th; eight inches snow 28th, 29th, 30th. Except this, month mild and pleasant.

West Bend, Iowa.—Aurora 26th. No great storm except on 16th, 17th. Month pleasant.

Boonesboro, Iowa.—Drifting snow-squalls all day 7th; rain, snow, high wind 16th, 17th.

Mineral Ridge, Iowa.—Drifting snow from west 7th; rain, snow, high wind southwest, then cold northwest, 16th; wind west, colder, 17th.

Rolfe, Iowa.—Diffused auroras 3d, 7th, 31st.

Logan, Iowa.—Mildest January in many years; free from storms of all kinds.

West Union, Iowa.—Rain, mist, all day 16th; cold in night, gale all day 17th, and mercury fell 55° in ten hours.

St. Louis, Mo.—Rain, lightning, gale 16th; then snow 17th.

Allenton, Mo.—Thunder, lightning, hail 16th, 17th.

Rolla, Mo.—Rainy, misty 16th; thunder-storm, hail, gale 17th.

Bolivar, Mo.—Warm, balmy wind, changed to furious northwest with thunder and lightning in north, and mercury fell 34° in two hours, on 16th.

Warrensburg, Mo.—Thunder and lightning in north 15th; thermometer 64° at noon; —4° at nine p. m.; range 68° in nine hours.

St. Joseph, Mo.—Gale 16th, (fall in temperature of 50° in nine hours;) river closed 17th. Good ice secured.

Oregon, Mo.—Auroras 3d, 7th, 26th, 29th a. m., and p. m. 30th, 31st; six inches ice on Mill Creek 18th; sleighing 26th.

Leavenworth, Kan.—On the 16th at noon, temperature 50°; at two p. m. 28°; at eight p. m. —1°; 51° in eight hours, killing most peach buds, as 60° sudden change, even if not below 16°, kills the peach.

Paola, Kan.—South gale, changed to southwest and west, growing cold rapidly 16th; blue-birds 31st.

Holton, Kan.—Some severe and sudden changes, but pleasant month, and wheat looks well.

Le Roy, Kan.—On 17th, seven a. m., thermometer 48°; eleven a. m.,

54°; two p. m., 26°; nine p. m., 8°; wind changed from south into north without diminution of force.

Council Grove, Kan.—On the 16th heavy south wind changed to north and temperature fell from 56° to 24° in three minutes. Except the norther of 17th, month pleasant.

Burlington, Kan.—Early sown wheat looks well; robins, blue birds, ducks, geese plenty all winter.

Omaha Agency, Neb.—Snow, high wind, increasing cold 16th.

De Soto, Neb.—Driving rain, ending in light drifting snow, 16th.

Bellevue, Neb.—Brilliant aurora 3d; sudden change from warm to cold, with furious wind, 16th.

Nebraska City, Neb.—River ice fifteen inches thick 22d; wild geese flying north 24th.

Harrisburg, Utah Ter.—Ground frozen four inches 11th. First half of month colder than in five years; little rain or snow, weather pleasant.

Chico, Cal.—Frosts on nine nights before 16th; growing weather since.

Watsonville, Cal.—More frost and less rain than usual, but grain growing finely.

Vacaville, Cal.—A drought feared in south California.

Cahto, Cal.—Slight hail and snow 15th; frogs, manganito blossoms, native bulbs shooting 31st.

Deer Lodge City, Montana Ter.—Faint auroras 2d, 3d, 29th; ice out of rivers, and frost nearly out of ground 31st. Warmest January known here; no thunder in it.

Walla-Walla, Wash'n Ter.—Ground frozen nine inches 18th; frost out of ground 25th; buds swelling, buttercup in bloom 29th.